

Security alerts: What you don't know about Web management tools can hurt you. **PAGE 53.** Universities still reeling from Code Red and Nimda worms. **PAGE 14.**

NetworkWorld

The leader in network knowledge ■ www.nwfusion.com

October 15, 2001 ■ Volume 18, Number 42

Bigger role seen for defense R&D

Defense Department's DARPA funds network research that others find too risky.

■ BY CAROLYN DUFFY MARSAN

ARLINGTON, VA. — A lack of venture funding for start-ups combined with a heightened fear of cyberterrorism may bring greater prominence to a long-time, behind-the-scenes investor in high-risk network research: the Defense Advanced Research Projects Agency.

DARPA, the research and development arm of the U.S. Defense Department, has a track record of funding key technologies used in military and commercial communications systems. DARPA is best known for creating the Internet in the early 1970s, but in recent years the agency has driven the development of wavelength division multiplexing and Gigabit Ethernet.

"DARPA doesn't get anywhere near the credit it deserves for the contributions it makes to research in communications," says Mike Schmidt, technical director for the leveraged technology group at BAE Information and Electronic Warfare Systems. "A lot of the patents that come out have roots in the [Defense Department]...A lot of the hot-shot engineers you find at start-ups came out of the [defense] business."

After last month's terrorist attacks, DARPA's role in funding research in such areas as high-speed optical networks and cybersecurity may become even more important as the commercial world looks to the military for better ways to protect information assets.

See DARPA, page 75



“DARPA doesn't get anywhere near the credit it deserves for the contributions it makes . . .”

Mike Schmidt
Technical director, BAE

Who will and won't be rushing to buy Windows XP

■ BY JOHN FONTANA

When Windows XP Professional ships next week, virtually no one is expecting a mad rush of buying from IT executives.

But that's not to say that there aren't companies poised to make the leap to XP. Where an organization stands on the matter is often a function of where it stands on the Windows evolutionary chart.

Those that have deployed or are deploying Windows 2000 are not likely to be interested in what some are calling the incremental improvements of XP, according to IT executives and analysts.

"XP is a version upgrade, not a full upgrade," says Michael Sherwood, director of IT for the city of Oceanside, Calif. Three weeks ago, Sherwood completed his desktop upgrade to Win 2000 and has no interest in XP. "If Windows 2000 is a 5.0 version, then XP is 5.1."

Others on older operating systems may find XP's purported reliability a blessing over Windows 95, 98 and NT. That's because they can skip Win 2000 and go directly to XP.

"We want to skip Windows 2000," says Jeff Allred, manager of network services for the Duke University Cancer Center in Durham, N.C. "With a limited staff, I'm looking at it as a laborsaving move." Allred also says his testing has shown XP to be more stable than Win 2000.

But the biggest factor that may garner corporate attention is the

Former federal agent calls XP a threat to national security

A computer forensics expert and retired federal agent is trying to convince the U.S. government that Windows XP is a threat to national security and its distribution should be postponed.

Michael Anderson, president of New Technologies, says data "scrubbing" features in Windows XP Professional will make it impossible for federal agents and law enforcement to find and

See Threat, page 76

licensing options with XP.

When a company licenses an XP desktop, it can use that license to run Win 2000, what Microsoft calls "downgrading" the license. The same license could be used

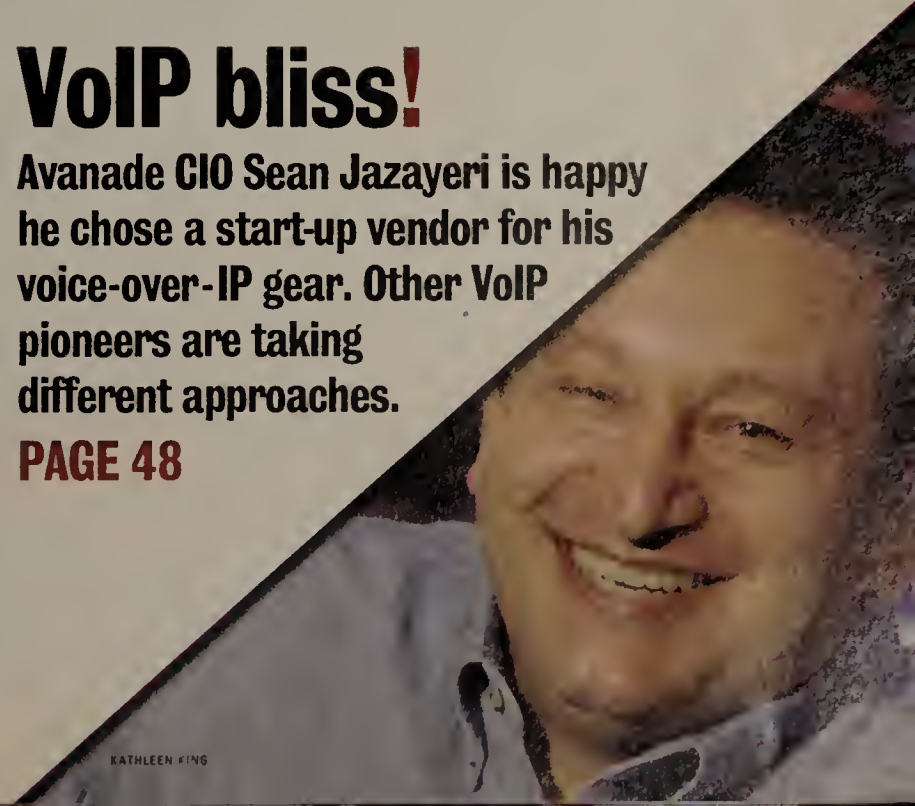
later to run XP. The ability to downgrade the license means users get one license to cover two versions instead of having to buy an upgrade in the future.

See Windows XP, page 76

VoIP bliss!

Avanade CIO Sean Jazayeri is happy he chose a start-up vendor for his voice-over-IP gear. Other VoIP pioneers are taking different approaches.

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Research

More with less

Net budgets are shrinking this year, and executives have to do more with less money — and often fewer people. Visit our research page with links to topics such as contract negotiation, dealing with budgets, leasing and getting the most out of your WAN. **DocFinder: 6433**

Security

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VPN Audio Primer

A challenge for net managers is how to beef up information flow while keeping WAN costs down. In our latest audio primer, you'll learn how VPNs work as well as which is right for your remote access needs. **DocFinder: 6435**

Shrinking LAN/MAN budget?

Make the changes you need to stay ahead. Find out how at our town meeting State of the LAN/MAN: Embracing Disruptive Technologies. **DocFinder: 6436**

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Musing on Nortel
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News

Bits

Microsoft again extends licensing deadline

■ Microsoft last week extended for the second time the deadline for companies to enroll in a new program for licensing and upgrading software. IT executives now have until July 31, 2002 to decide if they want to enroll in Microsoft's new License 6.0, a volume licensing program, and its companion upgrade program called Software Assurance. Both plans, which are available to those with Open and Select software contracts, have been met with passionate resistance by IT executives who say their licensing costs will dramatically increase. A study by Guernsey Research shows that companies which stay on a two-year upgrade cycle will save 19% in licensing costs under Software Assurance. But companies on a three-year cycle will see a 40% increase. Microsoft claims upward of 80% of customers will see a decrease or no change at all in their licensing costs. The company says the remaining 20% of customers may be best served by staying on the software they have deployed.

Back to court for Palm

■ Last week, a federal appeals court reinstated a lawsuit by Xerox against Palm. In the suit, Xerox alleges Palm infringed a Xerox patent when Palm developed its Graffiti handwriting-recognition software, which is a standard part of Palm OS-based products. The court's action reversed a lower court's dismissal of the lawsuit and remanded the case back to the U.S. District Court in Rochester, N.Y. Palm executives said the company would vigorously defend itself. Palm's stock price last week dipped to \$1.35 per share, compared to a 52-week high of \$67.35 in November 2000.

Executive changes afoot at Global Crossing

■ Global Crossing announced a major management shakeup last week, as the struggling provider of high-speed communication networks attempts to realign its busi-

ness. The company has also begun merging with Asia Global Crossing, following a consolidation trend in the telecommunication industry. John Legere, current CEO of Asia Global Crossing, was named Global Crossing CEO as part of the merger. Legere has pushed to boost the roles of sales and marketing executives in the company and also announced that previous President David Walsh is leaving. "It is always good to have a scapegoat," says Dana Tardelli, research analyst at Aberdeen Group, about Walsh's departure. "It has been no secret that Global Crossing is struggling, and there were lots of salaries going to people who weren't that effective."

Williams grabs the balance of iBeam

■ Williams Communications is acquiring struggling iBeam for \$25 million in cash. iBeam, which provides a network dedicated to streaming media, filed for bankruptcy protection last week. Part of the deal with Williams calls for an operating loan until the acquisition is complete, though both transactions are subject to approval by the bankruptcy court. Williams will integrate most of iBeam's customer contracts, facilities and equipment into its Vyvx Broadband Media unit. In June, Williams paid \$30 million in cash and services for a 49% stake in iBeam.

Proxim sets wireless LAN pace

■ In the 54-M bit/sec wireless LAN race, Proxim is first across the starting line. Last week, the wireless LAN vendor became the first to ship a network product based on the IEEE 802.11a standard, which uses the 5-GHz band, and is about five times faster

■ The Good The Bad The Ugly



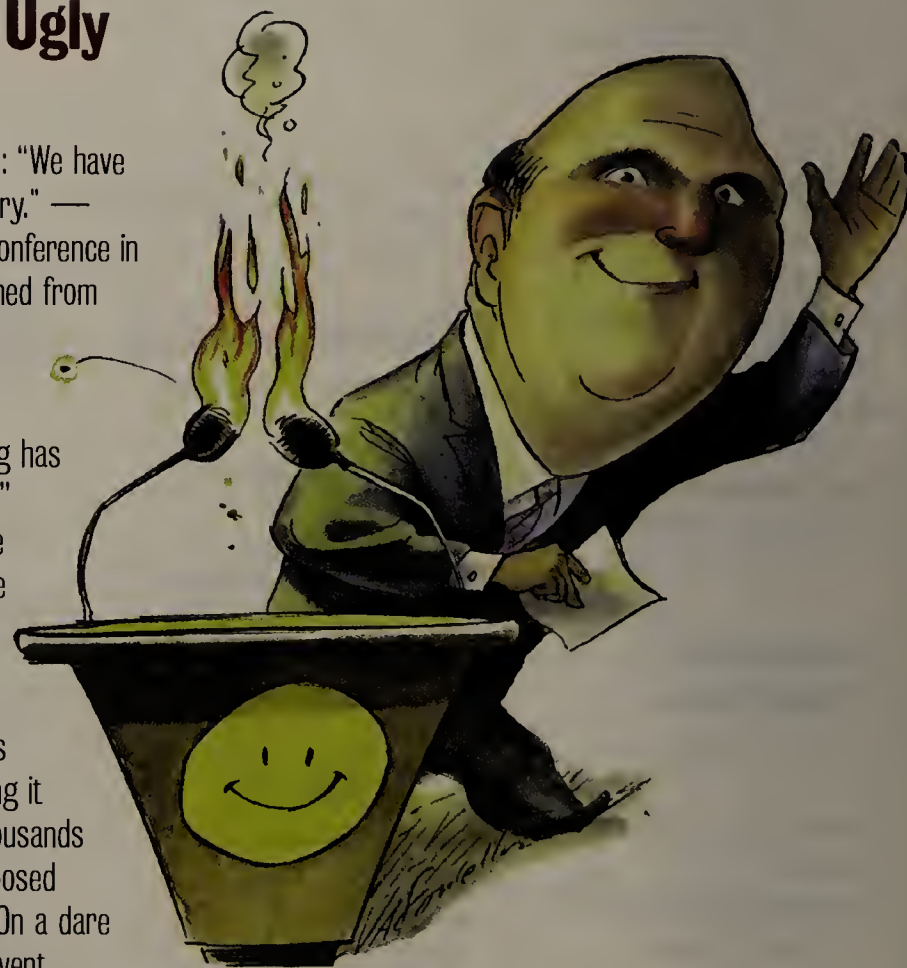
Steve Ballmer, Microsoft CEO: "We have to be viewed more positively by the industry." — Speaking at Gartner's Symposium/ITxpo conference in Orlando last week, regarding lessons learned from the company's legal dealings with the Department of Justice. ➤



Steve Ballmer: "The Sun thing has zero probability of mattering to the world." — Speaking at the same event about the Liberty Alliance Project, a Sun-led initiative that competes with Microsoft's Passport online authentication service. ➤



Michael Capellas, Compaq's CEO, showed that he's ready to do anything it takes — including dancing in front of thousands of people — to make his company's proposed merger with Hewlett-Packard successful. On a dare from an industry analyst at the Gartner event, Capellas danced on stage with her to "Mambo Italiano," while attendees clapped and cheered.



DANIEL VASCONCELLOS

than the 2.4-GHz-based 802.11b wireless products of today. Other LAN vendors are expected to release 11a products in coming weeks and early next year. Proxim released the Harmony 802.11a CardBus Card, which fits into desktop and laptop computers, letting them use a radio link to share data. Computers using the Proxim card can only share information with each other, through what the 802.11a standard calls an ad hoc network. Users won't be able to connect wirelessly to existing corporate LANs until Proxim ships an 802.11a access point in November. The card is priced at \$250.

WatchPad does a lot more than keep time

■ IBM and Citizen Watch showed off a prototype of WatchPad last week, the first timepiece that also includes a calendar, scheduler and instant-message-like e-mail. WatchPad will communicate via a Bluetooth chip with notebooks, handheld computers, cell phones and other wireless devices. At present, WatchPad has a battery life of six hours, but IBM is working to make the batteries last all day without recharging. Hewlett-Packard and Swatch are working on a similar project.



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IT execs rethinking disaster recovery

Budgeting and planning to protect resources is a hot topic at Gartner ITExpo.

■ BY ELLEN MESSMER

ORLANDO — Last month's destruction of the World Trade Center has pushed the topic of disaster-recovery planning to the forefront, and nowhere was that more obvious than at last week's Gartner ITExpo, where IT executives made it clear they're rethinking how to protect their companies' resources.

Gartner — which hurriedly added sessions on disaster recovery to the conference agenda that originally was more focused on Web services and PDAs — estimates it will cost a company 2% of its annual IT budget to fully prepare for business recovery after a disaster.

The principles of emergency readiness have been clear to security professionals for decades (see graphic). But growing dependence on the Internet and e-commerce is making the job more complex, requiring managers to account for Web-based interactions with trading partners in addition to finding alternate means to run critical data center operations during a disaster.

Gartner consultants recommend businesses prepare for disaster by establishing a recovery "hot site" to run critical applications. If limitations such as staffing demand that this alternate site be near the original data operations center, the hot site should be 30 to 50 miles away to avoid the consequences of damage or network disruptions that might come with a catastrophe.

Many companies have chosen closer locations.

"We're at 53 State St. in Boston,

Disaster-recovery planning tips

The Sept. 11 terrorist attacks in New York and the Pentagon are spurring many companies to pay closer attention to planning for catastrophes. Here's what experts recommend:

1. Complete a business-impact assessment plan to determine back-up needs and costs.
2. The IT department and business management must coordinate on recovery strategy.
3. Detail business application and personnel priorities for every division.
4. Decide if top-priority applications will require off-site backup in minutes, hours or days.
5. Decide if the command center or hot site can be another corporate site or should be outsourced.
6. Support critical network links to trading partners at the hot site.
7. Create a disaster-recovery team with one person in charge.
8. Prepare to set up a crisis-management center to communicate with business units.
9. Test all back-up plans periodically to adapt to IT and business changes.

and our disaster-recovery center is on the other side of Boston," says Eric Bloom, senior vice president of systems at Independence Investment, a subsidiary of John Hancock.

The World Trade Center's destruction and the consequent network communications problems (see www.nwfusion.com, DocFinder: 6055) have Independence Investment rethinking this location, says Bloom, who is a member of the company's disaster-recovery team. "We're taking it to heart." It would probably be better to move the data-recovery center 30 miles from Boston, he says.

In his presentation last week on the "How-to's of business recovery planning," Gartner consultant Fred Luevano emphasized the need to set up a disaster-recovery team composed of IT and business management to document a detailed strategy down to each application and employee.

"You've got to get senior management involved in the testing, too, so they know what it costs," Luevano said.

Because it costs more to get applications up and running in minutes as opposed to days or even a week, corporations usually prioritize what's most important to keep the business running. Money and time is dedicated to ensuring those applications are

running in recovery facilities first.

Each corporation has to choose whether to use one of its own locations for disaster recovery or choose a service provider such as IBM, Comdisco or SunGard, Luevano said. "I encourage you to do a competitive bid with them on how much it will cost each day" during the recovery, he said. "These vendors are usually willing to negotiate."

In either case, it's important to "not forget the network," he added. Back-up services such as Switched Multimegabit Data Service, ISDN, Frame Relay, private lines and dial-up should be negotiated in advance. These lines connect with the rest of the corporate intranet, but sometimes planners forget to order back-up lines for factories or critical customers.

Gartner analyst Donna Scott said corporations might have to negotiate separate software licenses for applications to make use of them during a disaster recovery at an alternate site. Mainframe vendors typically haven't charged extra for this, but many vendors will, she noted. "It adds cost," and is a subject of contention with vendors, she said.

With the growing importance of the Internet and e-commerce, Gartner officials said, there has to be a closer look at corporate business partner disaster-recov-

ery plans. Financial services firms are required under federal law to have emergency backup, and that's one reason many companies in the Wall Street area were able to get back in business fairly quickly after the Sept. 11 disaster.

But most companies are not nearly as ready for the type of disaster that occurred last month.

"Nobody was the least bit prepared for anything like this," says Richard Reichgut, vice president of AuthentiDate, which had an office with 28 employees at 2 World Financial Center on the 43rd floor, near the now-degraded World Trade Center.

Still in grief for the people he knew who died, Reichgut relates how four days after the terrorist attack, staff from AuthentiDate were given permission to climb up the 43 floors of the building in the disaster area — the electricity was out — to retrieve servers where software developers had been working. The company does backup by sending data to a firm in Germany, but not on a daily basis.

AuthentiDate, which is in the business of electronically time-stamping documents, keeps its servers for this function at AT&T's collocation facility at 53rd Street in Manhattan, so the time-stamping operation wasn't wiped out. AT&T has allowed AuthentiDate to work there until the firm re-establishes in permanent quarters.

"We're looking to build in redundancy now, but it will be expensive," Reichgut says. ■



THIS WEEK'S QUESTION:

Who did the Bush administration name as its cyberspace security czar?

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Corrections

■ Within the story, "Intrusion battle-ground evolves," (Oct. 8, page 53) a graphic misidentified Intrusion.com's product name. Under the installation and ease of use section, it should have said "Intrusion.com's SecureNet PDS appliance was the easiest to install."

■ The graphic with the story, "Media servers will bring new services," (Oct. 8, page 44) should have listed the dollar amounts in billions for spending on IP telephony equipment.



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NEC forges into uncertain switch arena

Company hopes network switch gear will ride the coattails of its servers, PBXs.

■ BY PHIL HOCHMUTH

NEC last week introduced a line of enterprise backbone Ethernet switches aimed at customers interested in IP-enabled voice equipment, network servers and high-speed, quality-of-service-capable LAN gear from a single vendor.

With an established U.S. customer base in servers as well as PBX and IP PBX phone systems, NEC is hoping that customers will also want to buy its network infrastructure equipment, phone systems and server hardware. Getting its new network products to ride on the coattails of its other offerings could be key for NEC, as many of the established

NEC's switch pitch

The BlueFire line of LAN switches from NEC can be put together with a variety of 10/100 and Gigabit interface converter (GBIC) modules.

Product name	10/100M bit/sec ports (max)	Gigabit ports (max)	Backplane
BlueFire 710	16 fixed ports, expands to 24	Two fixed GBIC slots	4G bit/sec
BlueFire 720	64, 16 ports per module	8, 2 GBIC slots per module	8G bit/sec
BlueFire 730	128, 16 ports per module	16, 2 GBIC slots per module	16G bit/sec
BlueFire 750	384, 32 ports per module	96, 8 mini-GBIC slots per module	96G bit/sec

leaders in the LAN switch market are struggling in the IP network infrastructure business.

NEC last year was fifth in terms of worldwide revenue among Intel-based server vendors, ac-

cording to market research firm IDC, and in third place behind Nortel and Lucent in the U.S. PBX market, according to Phillips Group. The company is bringing its BlueFire switch line from Asia,

where the products have been shipping for four years.

NEC's BlueFire 710, 720, 730 and 750 series switches can support hardware-based Layer 2 switching and Layer 3 as well as

eight levels of QoS prioritization with support for 802.1p/Q and Differentiated Services, two technologies for prioritizing data packets based on what kind of application — such as e-mail, voice or Web browsing — they belong to.

The BlueFire products also have hardware support for IPv6, the newest iteration of IP that promises to be more secure and can support many more addresses than the current IPv4. NEC claims to be the only switch vendor with IPv6 and IPv4 supported on its silicon (see chart for individual product specifications).

Cisco offers support for IPv6 as a software upgrade to its IOS switch and router operating system.

Microsoft puts its muscle behind Groove

In addition, NextPage takes wraps off its new peer-to-peer application.

■ BY APRIL JACOBS

Microsoft's \$51 million investment in Groove Networks last week could ultimately result in products that improve corporate users' ability to share files and data with Web-based collaborative software.

Proponents say peer-to-peer applications such as Groove's will give users access to critical information no matter where they are or what type of device they use. But, observers say those peer-to-peer collaborative applications must also offer features such as archiving and version control for documents, and secure messaging for communications, if corporate users are to accept them.

The number of users of collaborative applications will grow from 10 million this year to 70.5 million in 2005, says Robert Mahowold, an analyst with market research firm IDC.

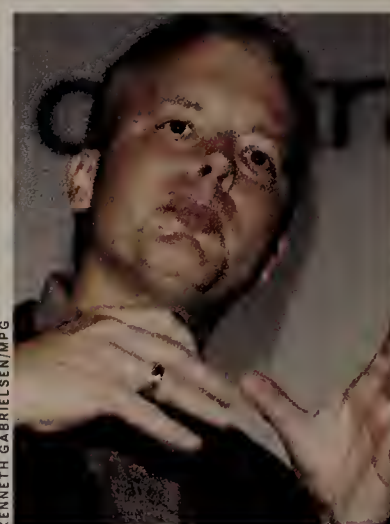
Microsoft and Groove say their software will address those requirements — but neither company would elaborate on specific products that would come as a result of the partnership. The companies did say the partnership will focus on giving users software for Web-based services and collaboration.

In the end, observers say Groove's technology will likely end up in Microsoft's SharePoint Team Services collaboration feature, which Microsoft plans to add to its upcoming Windows. Net Server, due out next year (see www.nwfusion.com, DocFinder: 6446). Windows.Net is the software Microsoft will use to deliver Web services.

During the last year, Microsoft and Groove have worked together on XML-based Web and peer services to give users a way to access data through multiple applications or via a browser. The collaborative software from Groove gives end users a way to work together in secure, shared virtual spaces, connected or disconnected from a central network. The software can also be used as a business-to-customer communications tool.

Analysts say Microsoft's Groove investment may help Groove differentiate itself in a crowded collaboration software arena.

"We believe Groove will be re-oriented to provide development tools and applications that exploit Microsoft's .Net initiative, allowing third-party and corporate developers to participate in Microsoft's grand plan for providing Internet application services," says Matt Cain, an analyst



Ray Ozzie's Groove is hoping a \$51 million investment from Microsoft will boost his P2P package.

with Meta Group.

In other peer-to-peer news last week, NextPage announced Matrix, a browser-based application designed to help users create virtual workgroups for projects inside and outside their corporate networks.

With Matrix, users can create a collaborative workspace that lets them access resources and people located within their company or with customers and business partners. The aim is to make it easier for geographically dispersed teams working on the same project to work together. After a project is finished, the

steps of that project can be saved and shared with others.

Baker & McKenzie, the world's largest law firm, with 3,000 attorneys in 35 countries and 63 offices around the world, is using Matrix to speed up, streamline and manage corporate mergers and acquisitions processes. Mark Swords, a partner at the firm, says Matrix is the basis for a powerful knowledge management system it couldn't find in any other software it looked at.

"We have to be better at managing knowledge on increasingly sophisticated transactions in multiple jurisdictions.

Matrix is a Web-based system that allows us to take a very broad view of knowledge and content, like documents, tasks, the sequence of those tasks and costs, and put it into an information format that can be used," he says.

NextPage competes with groupware such as Lotus' QuickPlace and will compete to some extent with Microsoft's upcoming SharePoint Team Services when it debuts in 2002.

Matrix ships Oct. 22 and is priced at \$350 per seat license.

NextPage: www.nextpage.com; Microsoft: www.microsoft.com; Groove: www.groovenetworks.net

Competition plentiful

The BlueFire switches will compete with large, chassis-based backbone switches such as the Cisco Catalyst 6500, Extreme's BlackDiamond, Enterasys' X-Pedition, Foundry's BigIron and Nortel's Passport switch.

NEC is also introducing its BlueFire IX5010 multiservice WAN switch-router for the edge of a corporate WAN. The four-slot chassis supports a variety of WAN line cards, such as ATM, packet over SONET, and T-1 and T-3. Eight-port 10/100M bit/sec and single-port Gigabit Ethernet blades are also available.

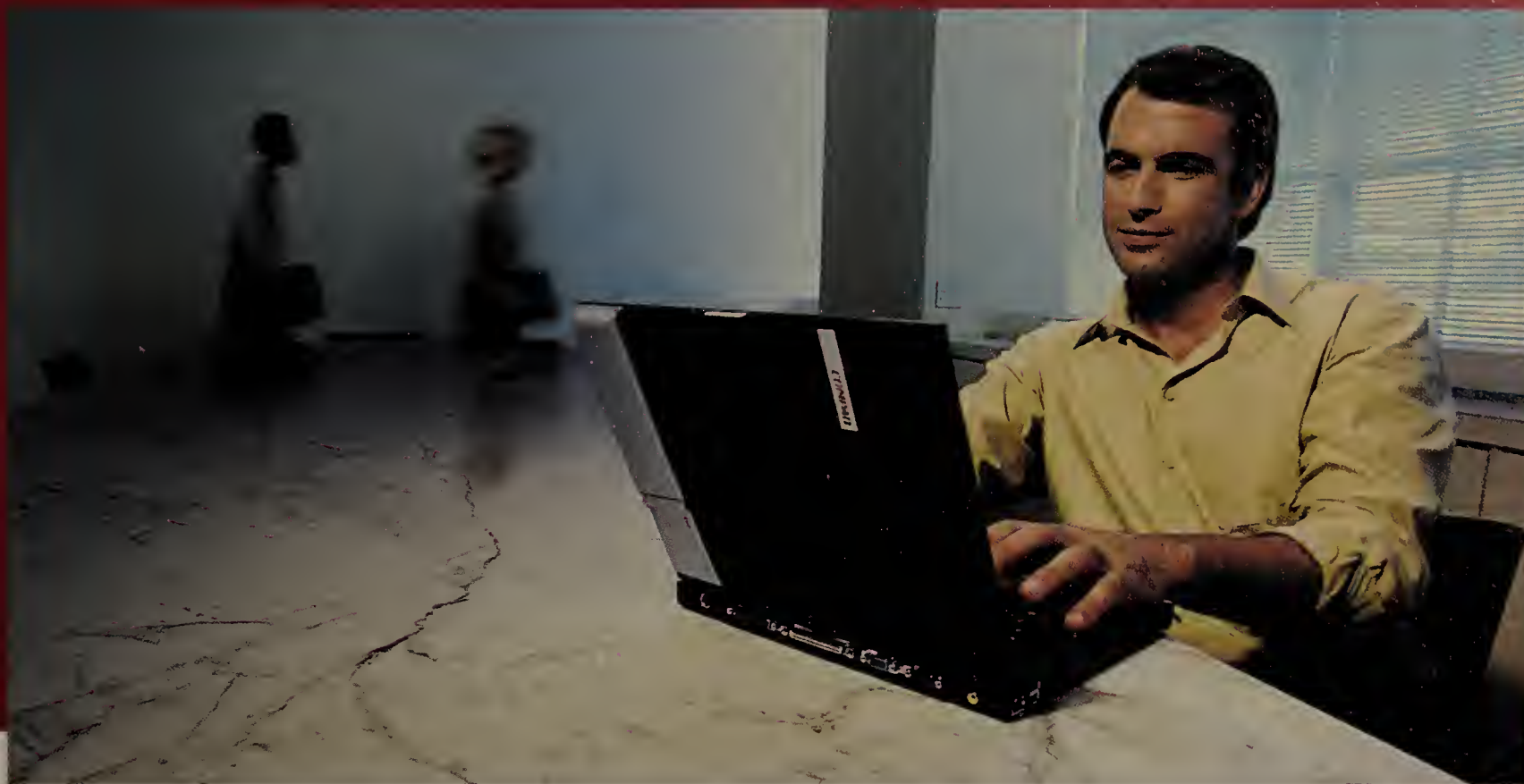
It could be said that now is not an optimal time to debut a network hardware business in the U.S., with studies from Merrill Lynch and Dell'Oro Group showing that IT equipment spending and the market for such gear will decrease this year.

A survey of CIOs in the U.S. by Merrill Lynch shows that IT spending will grow at 5.5% this year, down from its projection in January of a 9% growth rate. Dell'Oro expects that slowed spending will cause the Ethernet LAN switching market to shrink this year by 7%, the first reduction of that market.

While the outlook for network vendors is bad, one industry analyst thinks that companies such as NEC, which can offer combined server, switch and even IP telephony products, may be able

See NEC, page 16

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COMPAQ
Inspiration Technology

Start-up gets aggressive on VPN pricing

Experienced Virtela team previously built Sprint, Qwest backbones.

■ BY TIM GREENE

GREENWOOD VILLAGE, COLO. — Virtela Communications this week is making its debut with VPN services it boasts are less expensive than other WAN options, such as frame-relay networks and enterprise-owned VPNs.

Virtela's services range in price from \$300 to \$1,250 per site, per month depending on bandwidth, which includes local access lines and Internet access. The company claims it can deliver a VPN to replace a managed corporate frame-relay service for half the price. Virtela says savings from using its VPN service vs. a company running its own VPN are closer to 60%.

These bold claims come from CEO Vab Goel, who leads a core team of about 30 engineers who originally built Sprint's IP backbone, then went on to craft Qwest Communications' frame relay/ATM and IP networks. "We've done it more than once," Goel says.

Well aware of the overspending ways that helped doom

many a new service provider in the past year, Virtela has taken a decidedly frugal approach to building its network. The company has concluded that leasing backbone bandwidth rather than building its own backbone is the way to keep lean and survive long term without being dragged down by debt.

"Owning things today is a liability. We only need 500 [customer sites] to pay for our network costs on a month-to-month basis," Goel says.

The company has attracted \$75 million in investments from Norwest Venture Partners, where Goel is a partner, as well as New Enterprise Associates, Palomar Ventures and others. RSA Security, Symantec and Juniper Networks have also invested.

Customers tie into Virtela's network at points of presence in shared peering facilities in 16 U.S. cities. The service provider links directly to local access providers, both Bell companies and competitive local exchange carriers, in each city. Customer sites not in a city with a Virtela



"Owning things today is a liability. We only need 500 [customer sites] to pay for our network costs on a month-to-month basis."

Vab Goel
CEO, Virtela Communications

POP are connected via partner networks.

Through partner agreements, Virtela provides 700 access points for dedicated connections in the U.S. and 4,500 worldwide. Customers can reach Virtela's network through more than 6,000 local dial-up points.

The Virtela backbone is leased from multiple carriers, and each POP is connected to more than one backbone provider, which gives the network redundancy.

Using its own software platform, Virtela monitors perfor-

mance of these backbones and directs traffic over the one that is performing best.

Virtela offers U.S. service-level agreements from site to site of 100% availability, less than 300 msec latency, less than 0.5% packet loss and less than 1 msec jitter.

In addition to managed VPN service, Virtela offers firewall, video and voice services to companies, and can design and manage customer security systems as well. Virtela runs its customers' IP traffic through service switches, which determine what combination of services

the customer has signed up for and processes the packets accordingly. Goel would not say whose gear Virtela uses, but Lucent, Nortel and Cosine make such equipment.

Winphoria Networks, a mobile wireless start-up with trials in progress, uses Virtela's network to tie its Tewksbury, Mass., headquarters to branches in Spain and India. These overseas sites already had Internet access, and the company used these links to tie into the Virtela service, says David Heafey, the IT manager at Winphoria.

To protect these Internet connections, Virtela supplied NetScreen VPN appliances to Winphoria.

"They configured the boxes and shipped them and we installed them," Heafey says.

He can also tap into Virtela's management platform to keep an eye on the performance of its VPN tunnels and to determine if he needs to increase the size of any of them based on traffic.

Virtela: www.virtela.net

'Net access service out to stop DDoS attacks

Velocita's first offering boasts up to 2.5G-bit/sec access.

■ BY MICHAEL MARTIN

RESTON, VA. — Velocita last week launched its first offering, a high-speed Internet access service with a twist: built-in protection against distributed denial-of-service attacks.

The well-heeled company, whose investors include AT&T and Cisco, is targeting customers whose busy Web sites could be vulnerable to attacks.

Distributed DoS attacks gained notoriety about 18 months ago when a handful of high-profile Web sites were bombarded by hackers' packets to the point where the sites slowed or shut down, resulting in lost business or other damage estimated at \$1.7 billion.

At first blush, Velocita may seem like an unlikely candidate to be addressing the relatively new and complex distributed DoS issue — an issue that several university-spawned hardware

and software start-ups have taken on in recent months.

The company, formed in 1998 as PENet, has largely been in the business of laying cable. In fact, Velocita is installing a large portion of AT&T's new fiber network.

But at the same time, the company is installing and lighting its own OC-192 (10G bit/sec) fiber network to support its ambitious service plans, which include IP VPN and Gigabit Ethernet services further out.

With Velocita's first offering, simply dubbed Internet Access, companies can buy pipes ranging from a DS-3 (45M bit/sec) to an OC-48 (2.5G bit/sec). Velocita operates points of presence in 14 markets, with plans to expand to 67 next year.

Until Velocita completes its network, the company will rely on agreements with AT&T and Global Crossing to carry some traffic. To get into metropolitan markets, Velocita will use net-

PROFILE: VELOCITA	
Location:	Reston, Va.
Founded:	1998 (Formerly PF.Net)
Products:	High-bandwidth network services
Management:	Kirby Pickle, CEO (former president of Teligent)
Financing:	Up to \$485 million in funding and equipment financing from Cisco; \$125 million from Odyssey Investment Partners, others.
Employees:	More than 200
Fun fact:	Velocita began life as a cable-laying outfit, with a contract to build much of AT&T's new fiber network.

works from companies such as WorldCom, XO Communications and AT&T. Eventually, Velocita will build some of its own metropolitan-area networks.

The company's network is based on Cisco gear and appliances from Arbor Networks, which is among the aforementioned university-bred start-ups addressing distributed DoS attacks. Arbor's devices are designed to gather data on IP

traffic that lets them trace and filter out unwelcome packets.

Velocita claims its network can identify and close an attack in 5 to 7 minutes, although the company has no customers yet to substantiate this.

Still, Velocita's anti-DDoS capabilities could gain it some attention in an otherwise crowded Internet access field, says Russ McGuire, an analyst with TeleChoice.

"Their timing couldn't be better in coming out with something like distributed denial-of-service protection," he says. "Security in general is top-of-mind with everyone right now."

Pricing will vary depending on the geographical market, says Pati Smith, a Velocita senior vice president.

A basic DS-3 contract would start at several thousand dollars per month. Velocita wants to offer prices that are between 25% and 40% less than those from others, although she offered no explanation of how the company would attain that goal.

"We're new and we have to have disruptive pricing," she says.

Velocita: www.velocita.com



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Universities struggle to eliminate worms

Schools still tracking down infected machines.

■ BY ELLEN MESSMER AND JASON MESERVE

The Code Red and Nimda computer worms continue to plague networks, particularly at universities, where a tradition of openness is making it hard for IT managers to stamp out this wildfire of malicious code.

Code Red and Nimda, which began spreading in July and September, respectively, hog bandwidth and destabilize gateway routers as infected Microsoft Internet Information Servers (IIS) aggressively scan to find new victim machines to infect. Northeastern University in Boston and the Massachusetts Institute of Technology in Cambridge, among others, are still fighting the battle against the worms, tracking infected machines on and off campus, asking users to disconnect to cleanse them.

Northeastern acknowledged in a general e-mail late last month that network perfor-

mance has deteriorated because of Code Red and Nimda. Northeastern also admitted that organizations outside the university had contacted the school to complain about infection attempts coming from Northeastern-owned systems.

To combat the problem, Northeastern is cutting off network access to any machine that exhibits symptoms of a virus infection, says Bob Weir, vice president of IS at the school.

"We're in the process of doing an internal audit by going around to every machine that is susceptible to the virus," says Weir, noting that his IT staff has finished checking nearly 500 machines. "It's a brute-force effort."

Weir points out, "The challenge in managing an academic environment is that you can't look down a network like a corporation can."

Northeastern supports 3,000 workstations and makes Sym-

antec Norton AntiVirus available for download from a central application server, but it is not required. Weir says many users are surprised to learn their machines are infected when contacted by IS staff.

MIT deals with IIS problems

Bob Mahoney, a senior network engineer at MIT, says the school's security staff is still tracking down infected machines used by students or faculty. MIT is using tools to analyze whether machines running IIS still haven't been patched correctly to prevent infection by Nimda and Code Red.

"These vulnerabilities are well known, and we're saying, 'If you're machine is vulnerable, it will be disabled,'" Mahoney says. "We're always doing vulnerability scans on campus."

He notes that the network security group at MIT has spent 77% of its time in the past year dealing with Windows and IIS vulnerability problems. ■

'Net routers still feeling effects of Code Red, Nimda

New Hampshire firm Renesys, which does advanced research for clients that include Akamai Technologies and the Department of Defense, has concluded that Code Red and Nimda still represent a serious threat to routing stability in the Internet.

Particularly hard-hit are routers that use Border Gateway Protocol (BGP) Version 4, which is used by ISPs and companies to connect their networks to the Internet.

"The unbelievable barrage of traffic they have caused is creating overload conditions on BGP routers," says Renesys President Andrew Ogielski.

BGP routers tell other routers whether it's possible to reach certain destinations through their route. Routers that support BGP are built by Cisco, Juniper Networks and others. But the computer worms are causing BGP routers to fail, or keep traffic from flowing to particular networks, Ogielski says.

"We hear networks going up and down across the Internet," he says, pointing to an analysis conducted on 150 separate BGP routers from ISPs that include AT&T, Verio, Global Crossing and Qwest Communications. Renesys obtains this daily router traffic data from RIPE, an organization in Amsterdam that assigns domain names in Europe.

The worms are creating a kind of "tsunami over the entire Internet," Ogielski says. In a year of analyzing the router output in a project for the Defense Advanced Research Projects Agency, the firm has never previously seen this type of Internet routing problem.

ISPs with large backbone networks aren't feeling the brunt of this, but "the worst damage is to corporations and universities," Ogielski says. The result is that their networks just seem to "disappear" from the Internet.

— Ellen Messmer

Cysive aims to make apps device agnostic

■ BY KATHLEEN OHLSON

RESTON, VA.— After eight years as a Web integration company, Cysive next week will enter the commercial software market with tools for building and supporting applications that end users can access regardless of the devices they use.

Cysive, which had been called Alta Software before going public in 1999, has configured business systems for the likes of Cisco, United Parcel Service and Circuit City.

The company's new development tools and middleware, called Cymbio, is designed to let businesses build applications that sit on application servers and interact with back-end applications, such as those for accounting and logistics. The applications built with Cymbio can be accessed by users of desktop PCs, wireless devices

and voice-activated devices, among others. Currently many applications work only with specific access devices and must be rewritten to work with others.

For example, a transportation company using Cysive software could build applications for tracking its trucks and orders from the field via a phone, Web browser or PDA. Cymbio-built applications feature a function called FollowMe that would let businesses transfer a transaction, from say a browser to a PDA, and pick up where the transaction left off. It also would identify the device being used and deliver data catered to that channel.

Cymbio lets business applications, such as those for accounting, accept electronic signatures through Java Authentication and Authorization. It supports HTTP and WML, as well as Web services standards — XML

Easy access

Cysive's Cymbio middleware supports applications that end users can access regardless of the devices they use. Features include:

- Security & authentication
- Notification and alerts
- Workflow engine/editor
- Multilingual content
- Integration with legacy software from vendors such as SAP and PeopleSoft

and Java 2 Platform Enterprise Edition.

Cysive CEO Nelson Carbonell says businesses building applications with Cymbio can define and change application rules within minutes, and the changes can be automatically performed throughout all channels.

The company is targeting Cymbio toward transportation, financial services, healthcare and logistics businesses. Its competitors include BEA Systems, Aether Systems, Aligo, Covigo and Briante. Carbonell claims Cysive's competitors can't deliver applications to as many devices.

Philips Medical Systems, a division of Royal Philips Electronics, implemented Cymbio to track blood pressure, scale and electrocardiogram devices in the field. The company supplies diagnostic imaging systems, including X-rays and patient monitors, to hospitals, physician offices and outpatient clinics.

From information collected by engineers, nurses and suppliers, Cymbio compiles a list of what's available, problems and failures, and why devices were uninstalled.

"It's a lot of trouble to keep track of what's failed and what's returned and shipped out, and it doesn't make sense to re-enter information two or three times," says Cynthia Pacheco, Philips' operations manager for e-care services.

Pacheco says Philips is working on integrating its order entry system with equipment referrals for patients, tracking orders at the first stages to implementation and usage, as well as voice recognition capability.

Pricing for Cymbio is CPU-based and ranges from the low six figures to the millions of dollars.

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IT'S A DIFFERENT KIND OF WORLD.
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The Achilles' heel of remote net mgmt.

Web-based tools can leave companies vulnerable if not installed properly.

■ BY DENI CONNOR

The same Web-based software that organizations install to better control their networks may actually be endangering them.

The main problem is that these programs, which have become popular in recent years for allowing remote management capabilities from any client with a Web browser, can give hackers much more information about an enterprise network than IT staffs realize. That information can be used to damage networks, spy on a company or steal confidential data.

Because some of these programs are automatically installed when a larger program, such as a directory, is set up, administrators may not even realize the programs have been installed.

The danger is that many such programs are designed with default usernames and passwords that anyone can exploit.

"Any software that is installed by default is likely to be exposed because administrators don't always know about it," says Jeff Gassaway, a network manager at a Southwestern university.

"Our sites have more information than I would have preferred available to the outside," he adds.

Weak password administration and too many open TCP/IP ports are related problems that can leave Web-based management systems open for abuse.

"I will advise all administrators of the potential risk and get our open ports closed down," says Michel L'Heureux, IT manager for a large technical school in Canada.

In fact, all these issues were cited among the top 'Net security vulnerabilities by a new, jointly produced study from the network security organization SANS Institute and the FBI.

Organizations can use widely available tools for identifying unsecured passwords and open ports, but hackers have access to the same tools and assorted underground ones.

School's open

Provided with the name of a network-management utility and the TCP/IP port number, a hacker can launch a buffer overflow or other sort of attack.

“Any software that is installed by default is likely to be exposed because administrators don't always know about it.”

Jeff Gassaway

Network manager at a Southwestern university

In fact, this reporter, when provided with such information, could easily find several sites with holes in their networks (and alerted these organizations so they could lock them down).

All the exposed organizations we visited turned out to be universities, which isn't that surprising given that so many tend to be a little looser with their network security systems and firewalls in an effort to provide students and faculty with the access they need to do their work.

The examples of exposed sites also all involved Novell's Net-

Ware 5.1, although such security issues are not limited to Novell software.

In these cases, when NetWare was installed, a program called Novell Directory Services (NDS) iMonitor was also automatically installed. NDS iMonitor, designed for managing Novell's directory technology, was likely installed unbeknownst to network administrators and at a minimum security level called "public ID," which does not require a username or password.

Public ID lets NDS show the directory tree name, partition information, IP addresses and other data that can be used to scan a

network for vulnerabilities or to log on to the network.

A net manager, if aware that NDS iMonitor has been installed, can easily lock it down by changing the level of password protection.

Vulnerabilities also exist in SNMP agents, which have default usernames and passwords that can be accessed by any client to view information.

There is disagreement across the industry about just how open networks should be.

Compaq doesn't let any information be displayed by the management agents that come

Lock down

Best practices for securing your network:

- Completely block all ports on the firewall, and then punch holes through for specific services.
- Require authentication for all Web-based portals.
- Allow remote access to the network only through a VPN.

with its products. Its agents generate an authentication screen that reminds users that trying to guess the username and password is a violation of law that will be prosecuted.

Compaq is so wary of customers exposing network information gathered by its Web-based management software that it issued this advisory last month: "The implementation of sound security practices, which includes disabling external access to Compaq management ports, should help protect customers from external malicious attacks. Compaq also recommends that strong password standards are used and that passwords are changed regularly."

Not everyone is worried

Other organizations feel it is not necessarily harmful for outsiders to view information as long as they cannot change it.

Novell says iMonitor uses the anonymous Lightweight Directory Access Protocol (LDAP) Berkeley Internet Name Domain (BIND) operation to let unknown users obtain information about the directory so if

they have proper credentials they can log on. However, NDS returns more information than LDAP BIND requests.

While organizations must pay more attention to their authentication and network management practices, they should also take more advantage of firewalls and VPNs to secure their networks, says Marcus Williamson, president of network consultancy Connectotel.

"IT professionals should lock down their networks and only leave as few ports open as possible," he says.

"The only services you want to be seen by the outside world from a firewall are [Simple Mail Transfer Protocol] e-mail services, TCP Port 80 for the Web server and potentially an FTP server, which uses Ports 20 and 21," he adds. "Apart from that, there is no valid reason for allowing other types of traffic through."

But Paul Hoffman, director of the Internet Mail Consortium and a *Network World* columnist, says that expecting a firewall to protect against exposure is ludicrous. He points to the consequences of the recent Nimda worm (see related column, page 47).

"A lot of the people affected by Nimda were behind firewalls," he says.

"No network should need a firewall — firewalls are for the reality that networks are complex and that network administrators are either lazy or not powerful enough to enforce simple security. IT managers need to be sure to use the authentication methods provided for them," Hoffman adds. ■

NEC

continued from page 10

to do better than those with fewer items on their menus.

"It makes perfect sense that they would sell that kind of gear," says David Passmore, research director at The Burton Group. Passmore says that Ethernet switches have become such a commodity that some customers might be more willing to go with products from server vendors if package deals were offered.

Examples of such vendors in-

clude Hewlett-Packard, which has sold network gear along with its servers for years, and Dell, which entered the LAN gear market last month.

NEC did not mention any specific server or telephony products it would bundle with its switches.

Passmore also says NEC might have a strong market in selling its switches to its installed base of PBX users who may be IP enabling their PBXs, or who are looking at server-based IP voice systems from NEC.

The BlueFire 700 series switches are available now and cost \$378 per 10/100 port and about \$1,800 per Gigabit Ethernet port.

The BlueFire IX5010 multiservice switch is also available now and starts at \$8,500.

NEC: www.nec.com



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Short Takes

■ **Fujitsu Technology Solutions** last week upped the processor speeds on its **PrimePower** line of Unix servers, boosting chip output by about 20%, the company claims. By increasing speeds on its PrimePower Unix servers, FTS will continue to match up against Sun and IBM, which released major upgrades to their product lines recently. The company sold hardware with 560-MHz versions of its SPARC64-GP chips, but will now increase system speeds to 675 MHz for high-end servers and 600 MHz for midrange models. Customers who have already purchased the high-end PrimePower 2000 or PrimePower 1000 servers can add the new processors to empty slots in their current machines. FTS supports Sun's Solaris operating system releases 2.6, 7 and 8. Pricing was not available. www.fujitsu-technology.com

■ **Overland Data** is introducing a tape library for backing up corporate networks. The **LXN4000** is a 10U (17.5-inch)-high, four-drive automated tape library that can hold up to 24 terabytes of data. It has up to 54 media slots. Each drive module operates independently of the others and can be configured with DLT8000 or Super Digital Linear Tape drives. The LXN4000 also contains an integrated 1G- to 2G-bit/sec Fibre Channel to SCSI router for connection to a storage-area network and server. It will ship in November starting at \$49,000. www.overlanddata.com

■ **Net Optics** last week launched a protocol-analysis tool that lets users monitor wide-area DS3/E3-speed enterprise nets. The DS3/E3 Tap supports passive monitoring, which does not interrupt net operations or break net connections. It works with analyzer products such as the Network Associates Sniffer, Cisco SwitchProbe and Agilent Internet Advisor. The Tap supports half- or full-duplex transmission at up to 45M bit/sec over 450 feet. The tap costs \$1,550 and is available now. www.netoptics.com

Beta testers give Novell's NetWare 6 positive marks

■ BY DENI CONNOR

PROVO, UTAH — Joe Douplik has a big problem with NetWare 6, Novell's newest network operating system.

"There is so much information in this package that administrators and users are going to be overwhelmed at first," says Douplik, professor of electrical and computer engineering at Utah State University in Logan, Utah.

NetWare 6, which ships this month, includes a completely rewritten Web look for users and administrators, and support for multiprocessor and clustered servers. The release is important to Novell as it struggles to retain longtime NetWare users and give them new and useful tools so they don't move to Microsoft or other vendors.

Network World interviewed some beta users of NetWare 6 and found they liked a number of key new features, such as:

- Internet printing option, which lets users and administrators select printers

and print to them simply by choosing the printer from a Web-based graphical representation of the network.

- IFOLDER, which lets traveling or remote employees work on files located on the network from remote locations. If users create files, when they attach to the network during dial-up communications, those files are immediately saved to the network.

- Native File Access Protocol, which eliminates the need to install client software on network workstations to access the file server. Users gain



Alisa Phelps, internetworking analyst for Forsyth County in North Carolina is looking forward to managing her servers remotely with the Web-based Novell Remote Manager.

access to the network via a Web browser. See NetWare 6, page 20

Solsoft manages multivendor security

Management software helps users set VPN policies.

■ BY TIM GREENE

MOUNTAIN VIEW, CALIF. — Solsoft, whose management software helps users provision policies on firewalls and routers, is announcing that it can now do the same thing for VPNs.

Solsoft NP reconfigures network devices to support new security policies, eliminating the time-consuming problem of reconfiguring devices box by box. Manual configuration of individual boxes can also introduce errors.

With its initial release, the VPN module supports only Cisco PIX firewalls and Cisco routers that include VPN software, but the company plans to add support for other vendors' VPN gear later, says Robert de Monts, the company's CEO.

Solsoft's strategy is similar to the approach taken by SmartPipes, whose software can also configure Cisco VPN gear. But SmartPipes only configures VPN hardware, not firewalls and access-control lists

PROFILE: SOLSOFT	
Location:	Mountain View, Calif.
Founded:	1997
Product:	Solsoft NT security management platform
Chairman and CEO:	Robert de Monts
Financing:	\$16 million from Carlyle Internet Partners, Intel Capital
Competitors:	TBD Networks, Check Point, SmartPipes
Customers:	Deutsche Telekom, IBM Global Services, Renault, Telecom Italia, U.S. Cellular

providers based on its software. Solsoft sells its software directly to corporations and service providers.

Individual vendors, such as Check Point Software, have similar features in their own management platforms, but these platforms configure only their own equipment.

Solsoft calls the new VPN software Solsoft NP VPN Module, and it automatically translates security policies into commands that reconfigure network devices to enforce the policies. These policies are set using a graphical user interface that includes a map of the user's network.

With Solsoft NP, users build a map by arranging icons of the individual devices on a management station screen. Then they indicate what policy they want to apply to what application, and the software automatically reconfigures the devices involved.

for routers like Solsoft does. SmartPipes also sells a service to other service

So if users want to create an IP Security tunnel for all SNMP traffic between two See Solsoft, page 20

TOLLY ON TECHNOLOGY

Brian Tolly



The real meaning of zero loss

tested was for "residential users" and that these users (read: you and me) didn't understand or care about the difference between .001% loss and 1% loss.

I found it alarming that this vendor (and so many others) are looking to lower the testing standards instead of raising the quality of the products, especially in the small-office/home-office market. Just because I'm a residential user, does that mean I don't deserve the same quality I have come to expect from my workgroup and enterprise products?

May I remind everyone that according to RFC 2544, the benchmarking methodology for network interconnect devices, zero loss means that no packets are lost. Currently, The Tolly Group's de facto standard for zero-loss testing is five nines (99.999%) of throughput or .001% loss. Although The Tolly Group has on one or two occasions lowered the bar

even further, it was done not because we wanted to, but out of necessity to obtain comparable data points in the products being evaluated. Even then, we kept the more stringent zero-loss results for the product that performed at the .001% rate. Although rare, there may be times when lowering the zero-loss bar is necessary.

Let's take a look at what the difference between .001% and .1% loss really means.

When we test a device with a loss tolerance of .001% what we are saying is that out of every 1,000 frames that traverse the device under test, only one frame is allowed to be dropped. When we test at a .1% packet loss, of the same 1,000 frames that traverse the device under test, we are now saying it is acceptable to drop 100 of these frames.

OK, so what does it mean to me? Imagine you are downloading a 6M-byte file — we will use one that is 6,373,920

bytes. Using this file and the largest standard Ethernet frame size of 1,514 will require more than 1,400 frames to complete. What happens if we lose one frame? Probably nothing, but as the frame loss increases, so do retransmissions and timeouts that ultimately can lead to session termination. This packet loss is definitely unacceptable when performing secure transactions where state must be maintained on the sessions.

What can we do? You can insist vendors offer testing results that are fair and of the highest standards — meaning, don't play games with packet loss tolerances. Make the vendors raise the quality of their products instead of lowering the standards to help make their products look good.

Tolly is an engineer with The Tolly Group in Manasquan, N.J. He may be reached at btolly@tolly.com.

We test lots of network devices — Fast Ethernet/Gigabit Ethernet switches, routers, VPN switches, firewalls — often measuring how many packets are dropped (zero-loss throughput) as a key gauge of overall performance. During the past few months, many of our customers have asked if we can alter the acceptable loss tolerance in our zero-loss test suites to something less stringent. My answer to this question has been a firm "no."

The reasons behind these requests have varied.

One vendor said the product being

NetWare 6

continued from page 19

which is particularly helpful for remote users, where client administration is time-consuming and configuration is problematic.

- Novell Remote Manager, which lets users collect management utilities from NetWare 5.x under one interface that can monitor, manage and reconfigure servers, directories and workstations on the network.

However, beta users said the

training for technicians and users would take considerable resources.

"There's a huge learning curve people have to surmount," Douppnik says. But, he says, the fact that essential functions — printing, file saving, synchronization and management — have been moved to a familiar browser base will make their introduction to users and administrators easier.

Administration eased

The package should make administering NetWare environments easier.

"With Novell Remote Manager, everything is right there together, and you don't have to go from one tool to the next or get out of something else because management is in one spot," says Alisa Phelps, inter-networking analyst for Forsyth County in Winston-Salem, N.C. "There are a lot of features such as processor utilization and memory allocation that people didn't know how to get to before that you can access from a browser, irrespective of your location."

Phelps manages 21 NetWare 4.11 servers and one NetWare 3.2 server for 1,400 staff members at 10 Forsyth County government offices. Each NetWare server contains office applications, e-mail and databases. She also has

15 Windows NT servers that run DNS, Web services and SQL Server. Because Phelps may need to manage and fix problems on servers from home or any location on the network, she is looking for a package with a Web-

services, making it easier for us to pool resources and distribute them within departments, and they've made clustering more reliable and easier to use," Bogdanovsky says. "You can specify which servers will take

There's a huge learning curve people have to surmount."

Joe Douppnik

Professor of electrical and computer engineering, Utah State University

browser interface that lets her handle that.

"Administrators and users are asking, 'How can I manage functions such as printing and file synchronization without a Web-based interface that lists all the things I need to do?'" Douppnik says. Novell has thought about users and how they work, and incorporated it into NetWare 6, he says.

Another Web-based feature eliminates the need for administrators to install client software on all user PCs. "With the Native File Access Protocol, Novell has is also trying to come close to what the customer is wanting to do — make access easy," Douppnik says.

Alex Bogdanovsky, network systems manager for the University of Maryland in College Park, is using NetWare 6 to cluster up to 10 of his 19 NetWare 5.1 servers. "We have held up on clustering our servers until NetWare 6 because the new product has significantly improved the clustering capability," he says.

"Novell has improved storage

over resources in the event of a server failure. If a second server fails, you also specify where its resources will run." With NetWare 6, an administrator can cluster up to 32 servers.

Of all the features Novell offers with NetWare 6, Brad Staupp, senior support analyst at Johnson County Community College in Overland Park, Kan., has waited the longest for one — the ability to run NetWare and see performance increases on servers with multiple processors.

"Finally," Staupp says. "Our need for symmetric multiprocessing goes all the way back to NetWare 4 when Novell wasn't really doing SMP."

"Now SMP is really active — all the modules are written for symmetrical processing. We are seeing a 10% to 20% improvement in performance. Some applications are running 50% better," Staupp says. Novell has been promising SMP for at least five years.

NetWare 6 will ship this month for \$184 per user.

Novell: www.novell.com

Solsoft

continued from page 19

devices, they would first designate that they want to make a rule for SNMP traffic. Then they would mouse click on the icon for one device, click on the icon for the other, and the software would figure out how to reconfigure them to create the tunnel. Solsoft NP would then send the commands to reconfigure the machines so they will enforce the new rule.

Sites equipped with a standard set of network hardware can be grouped, so one policy change will be executed at all sites.

Solsoft NP management station software can run on Windows 98, 2000 and NT, IBM AIX, Sun Solaris, Hewlett-Packard HP-UX and Linux. Solsoft can manage access control for 3Com, Cisco, Ericsson, IBM, Nortel and StorageTek routers, among others. It can manage firewalls by Check Point, Cisco, Evidian, Net-Asq and Nokia.

Solsoft started in Europe and is opening offices in the U.S., with headquarters in Mountain View. About 80% of its roughly 150 customers are in Europe, de Monts says.

Solsoft NPVPN module is available now. Solsoft NP Management station starts \$15,000 for a small enterprise edition.

Solsoft: www.solsoft.com

Tips for a successful migration to NetWare 6

Whether in a small or large environment, there are a few universal tips for migrating to NetWare 6:

- Plan the upgrade. Are you going to migrate all servers or just a few of them to NetWare 6?
- First perform the upgrade on a test network if possible.
- Ensure the integrity of your NDS eDirectory tree.
- Upgrade to the same version of eDirectory on all servers.
- Make sure you have multiple backups of the data contained on the servers.
- Upgrade the client software first. Install the latest client software.
- Make sure that the applications running on your current server are NetWare 6-compliant.
- Run a complete backup or two after the installation has finished.



More online!

More on Solsoft's policy-based security management package.

DocFinder: 6428

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The screenshot shows the NetworkWorldFusion website. At the top, there are navigation tabs: NetSmart IT Education, Product Directory, Net.Worker Remote Networking, and The Edge Service Providers. The main header reads "NetworkWorldFusion The Leader in Network Knowledge". Below this, there are several sections:

- Best Bets on NW Fusion:** A red arrow points to this section, which features a "VPN woes force shift at giant e-comm net" article by ANX. The article discusses the ANX network and its challenges.
- Today's News:** A list of headlines including "HP to buy Compaq for \$25 billion", "Dell set to unveil workgroup switches", "Hancock, Exodus part ways", "Security hole found in Saunter firewall", and "New IBM Unix server features its fastest processor".
- Net Know-It-All YOU COULD WIN \$500:** A contest announcement.
- TECH SPECIFIC NEWS ALERTS NOW AVAILABLE:** A section for getting the latest news on Cisco, Microsoft, Network/Systems Management, Storage, LANs and The Edge.
- ADVERTISEMENT:** A section for "OLD NEW ECONOMY BILLIONAIRES ON PAPER."
- What's Hot:** A section for "What's Hot" in the IT industry, featuring a "Free White Paper: The Path to MPLS" by WaveSmith Networks.
- Don't Miss This:** A section for "Don't Miss This" in the IT industry, featuring a "Free White Paper: The Path to MPLS" by WaveSmith Networks.
- Products:** A section for "Products" in the IT industry, featuring a "Free White Paper: The Path to MPLS" by WaveSmith Networks.
- Just for New Visitors:** A section for "Just for New Visitors" in the IT industry, featuring a "Free White Paper: The Path to MPLS" by WaveSmith Networks.
- Power Fusion Users:** A section for "Power Fusion Users" in the IT industry, featuring a "Free White Paper: The Path to MPLS" by WaveSmith Networks.

A large red arrow points from the "What's Hot" section to the "Best Bets" section. A yellow starburst with the word "NEW!" is positioned near the "Just for New Visitors" section.

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Special Focus

SERVER BLADES: Diminutive devices pack plenty of features in a small space.

Server blades set to invade enterprise nets

■ BY APRIL JACOBS

Small, specialized servers called blades can save companies hundreds of thousands of dollars. Just ask Credit Suisse First Boston.

The financial services house expects to save \$500,000 to \$1 million per rack of server blades it installs over traditional full-sized server racks. Credit Suisse First Boston has been beta-testing Egenera's BladeFrame, one of the many server blades soon to hit the market. Evan Bauer, CTO of the company's investment banking division, says BladeFrame is an excellent candidate for a new financial application being developed there.

"Some applications require us to deploy hundreds of servers in a coordinated manner, and that's expensive," Bauer says. "Blades are one of the ways to control costs in a way that doesn't compromise reliability and availability. What BladeFrame resembles is a 'cluster in a can' that incorporates both networking and storage, so instead of having to build the systems, they are already there."

Unencumbered by the physical bulk and myriad components of traditional servers, blades slide into slots on a specially designed rack. In most cases, the server blade consists of essential processing and sometimes storage components, while the rack unit provides for network and external storage connections, significantly reducing cabling and space requirements.

"Blades promise high-density computing at a lower cost, because each blade just slides in and hooks up, so users can reduce cabling and easily replace one that goes down by simply pulling and replacing it," says Bob Sutherland, an analyst with Technology Business Research.

In addition to reducing management and support headaches, blades can reduce costs. RLX Technologies claims that with average Internet data center space costing \$300 per square foot — based on figures from a Legg Mason Industry Research Update — using less of it saves money.

Proponents say server blades are suited to corporate data centers for Web hosting, database and financial applications, where transaction volume varies. In those environments, blades make it easy to add servers to help carry the load. Blades can also help customers provide a measure of reliability because they don't take up much space and can be added and replaced fairly easily.

A growing segment

In the next few months many different types of server blades aimed at specific applications will be rolled out from a variety of companies. So far, blade sales are just a blip on the map, with projections of about 50,000 unit shipments accounting for just a bit of the total server revenue. But market research firm IDC predicts that by 2005, 2 million server blades will be shipped, with a total revenue of \$4.5 billion. The total server market in 2005 is expected to be \$102 billion.

Vendors in the blade market that have announced or

intend to announce products include RLX, IBM, Dell, Compaq, Hewlett-Packard, Sun, Amphus, Centauri NetSystems, RealScale Technologies, Racemi, OmniCluster and Egenera.

Many server blade vendors will aim at specific functions. For example, RLX will target the Web hosting market with its ServerBlade System 324. The System 324 ships with Microsoft's Server Appliance Kit 2.0, designed to make setting up and maintaining Web servers simpler. The System 324 also features redundant power supplies and RLX's Control Tower management software, which lets customers control and configure the system from one location.

The RLX blade can run Windows 2000 Server and Advanced Server, and Red Hat Linux 6.2. For about \$5,000, users can get a ServerBlade chassis with dual power sup-

“Blades promise high-density computing at a lower cost . . .”

Bob Sutherland

analyst, Technology Business Research

checking and correcting memory or up to 12G bytes of ECC memory in the case of the four-way pBlade.

The rack consists of a 24- by 30- by 84-inch chassis that can accommodate up to 24 two-way and/or four-way processing blades. Egenera also offers integrated switches, controllers, cluster connect buses and its own processor-area network (PAN) Manager software. PAN Manager lets customers configure, control and monitor the blades in the system from a single location. Egenera's blade-based system could be called a server, network and storage system in a rack. The company hopes to attract users by offering multiple features and components that they would otherwise have to purchase, install and integrate separately. BladeFrame ships with Red Hat Linux, and pricing starts at about \$250,000.

Racemi is designing blades aimed at helping network executives put applications online faster. Racemi's Race5 blades can be managed using the company's dynamic server allocation software, which lets software run in a distributed fashion across Race5 server blades. The idea is to let network professionals more easily assign computing power for specific tasks. Specifically, Racemi's Race5 server blades run server-grade, 1-GHz Pentium III chips. It supports five individual, hot-swappable, Race5 server blades, which fit into a single, 1-U (1.75-inch) chassis.

What's inside?

The technology inside the server blade is also a distinguishing feature. RLX was one of the first companies to market a blade using the Transmeta Crusoe chip. The Transmeta processor offers users the low-power-consumption, low-heat features that make blades attractive to users by lowering power bills. The Transmeta processor also produces less heat than a traditional server processor, which means it can be packed into tighter spaces and requires less cooling.

Intel's answer to Crusoe is Tualatin. Tualatin is based on a processor architecture that, like Crusoe, is designed to offer users the basis for dense server blades that will consume less power and produce less heat. Tualatin's main differentiator is that it's based on Intel's architecture, which may make it attractive to users who feel comfortable with the number of applications certified to run on it.

In June, Compaq said it would base a line of server blades, called QuickBlade, on Tualatin. Compaq's QuickBlade, scheduled to ship by year-end, will have standard server features, like ECC, room for memory expansion and support from third-party software vendors. Those vendors have not yet been named, but should include some providing Web, database and other back-end software applications businesses consider critical. HP is also getting into the blade business. HP's offering, also due out later this year, will be called Powerbar. ■

Blade flavors

Existing and future server blades will feature many different characteristics. Here are some typical descriptions of each:

Type	Vendors	Characteristics
Edge servers	RLX, Omni	Many low-power blades, dense packaging
Application servers	Egenera	SMP blades, large memory, multiple blade options
Embedded/telco servers	Cubix, RealScale	PCI/Compact PCI blades, NEBS compliance

SOURCE: EGENERA



RLX ServerBlade



OmniCluster SlotServer 1000

plies, three server blades that have a 633-MHz processor, 256M bytes of memory and 10G bytes of storage.

For now, IBM is reselling RLX technology and has a spinoff called OmniCluster. OmniCluster's blades are actually servers on a board that can plug into an existing PCI server slot. OmniCluster's SlotServer 1000, which debuted in March, comes with or without a hard drive, and features expandable memory options. Pricing starts at about \$600.

Others, such as Egenera, are aiming their systems at database and financial applications, adding in management and network features designed to optimize them for mission-critical applications.

Egenera's BladeFrame System combines hardware, software and network features integrated into a single blade-based system. A BladeFrame rack can be configured with three types of processing blades, called pBlades by Egenera, including dual 1- or 1.26-GHz Intel processors, or a four-way system with the same speeds. The processor boards feature 1G or 2G bytes of error

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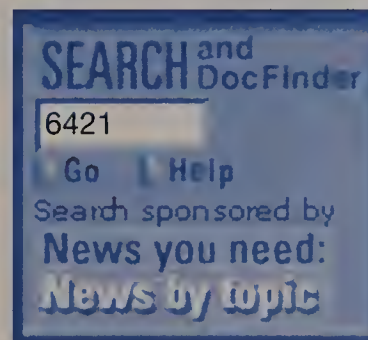
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Nortel's Clarify users in limbo

Following Nortel sell-off, new owner Amdocs still finalizing support details; observers are skeptical.

■ BY ANN BEDNARZ

Mike Whitney is taking a wait-and-see attitude toward Nortel's sale of its Clarify division, but hopes the sale will reinvigorate Clarify, which he says has seemed unfocused in recent months.

Short Takes

■ **Microsoft** is previewing a service that lets customers receive instant messages from companies carrying information such as auction bid updates, stock quotes, travel schedule changes and bank transaction notifications. For the preview period, **.Net Alerts Service** is being implemented by online auction site eBay, Microsoft's MSN Carpoint online automotive service, and the financial news service CNBC on Microsoft Money. The alerts work with the MSN Messenger service, and will soon be available to users of the new Windows XP operating system with its integrated Windows Messenger. The alerts can also be sent via standard e-mail, or via devices supporting Microsoft's MSN Mobile wireless service, including PDAs based on Microsoft's Pocket PC operating system, as well as Handspring and Palm devices. Twenty-three other companies, including E-Trade, Microsoft's Expedia travel site and Nasdaq, plan to offer information updates via the service. www.microsoft.com

■ **MRO Software** last week released **Collego Catalog Manager**, a software application for industrial suppliers. Collego Catalog Manager aggregates data from multiple sources, formats it and stores it in a central repository. Suppliers can create and present product data with information such as graphics, URL links and diagrams. Pricing begins at \$100,000. www.mro.com

"I think Clarify has been a little unstable in the last 6 months due to its impending sale by Nortel," says Whitney, vice president of IT at Compaq Global Services.

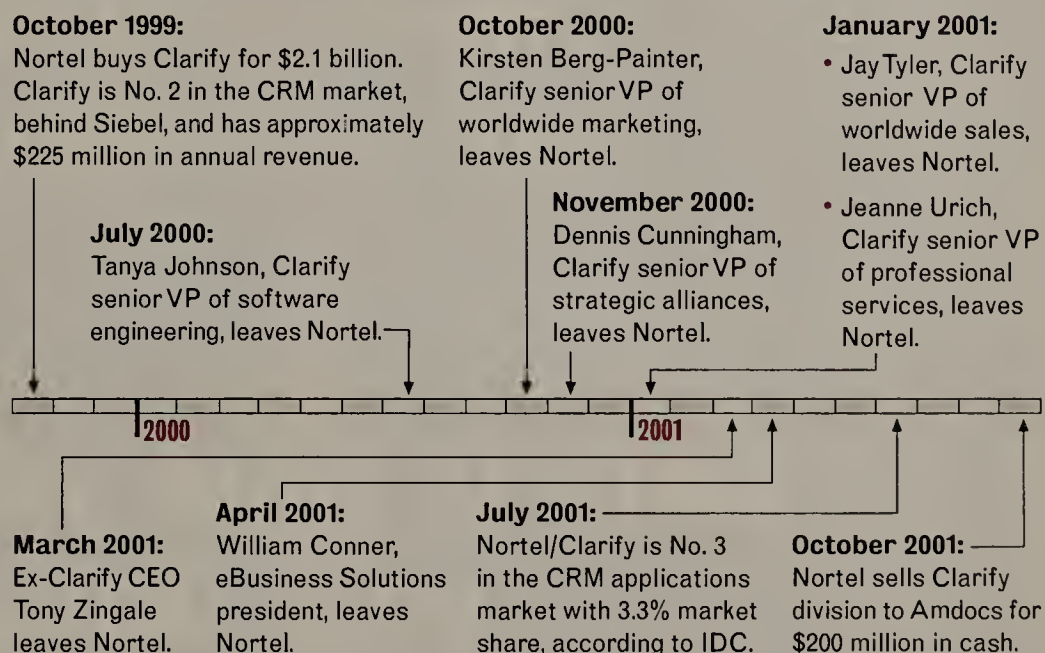
Telecom software vendor Amdocs announced on Oct. 2 it would buy Nortel's Clarify assets for \$200 million in cash — a price that amounts to less than 10% of what Nortel paid for Clarify in October 1999.

Whitney says he wants to wait at least until new owner Amdocs makes clear its strategy for selling and supporting Clarify's customer relationship management (CRM) software. Compaq's Global Services group uses Clarify ClearSupport customer service software throughout its global call centers. Deploying new back-end CRM applications isn't something he's eager to do. So for now at least, Whitney and other customers are prepared to watch Amdocs and wait.

For its part, Amdocs has said it will continue to sell CRM software as a stand-alone product as well as integrate it with its own software. Amdocs makes billing, provisioning and order-management software for telecommunications service

Clarify's slow fade

In the two years it owned Clarify, Nortel lost CRM market share and a number of key executives.



providers, and it intends to keep its telecom focus, according to executives.

"In integrating Clarify into Amdocs, our focus is and will remain on communications," Avi Naor, president and CEO of

Amdocs Management, said in an analyst briefing. "In fact, the goal of strengthening our position in the communications market is the key objective of this acquisition."

See Clarify, page 28

SurfControl filters e-mail, Web content

■ BY SAM COSTELLO

SCOTTS VALLEY, CALIF — SurfControl last week announced upgrades to its SuperScout Web and SuperScout e-mail content and access-filtering applications that will help companies block employee access to individual Web sites or groups of sites, or keep employees off the Web altogether.

For its SuperScout Web Filter 4.0 application, the company has added features such as the ability to limit Web access, enhanced context-sensitive word filtering, internal e-mail filtering and a new engine for determining whether an image contains inappropriate content.

The new version adds threshold blocking, which gives employees a preset

amount of time on or data downloaded from the Internet every day, new reporting features and customized Web "Deny" pages, says Bob Kessinger, product marketing manager for SuperScout Web at SurfControl.

SuperScout Web Filter's ability to set thresholds on the amount of Internet access users have not only ensures productivity but can also help ease bandwidth usage, Kessinger says. SuperScout Web Filter can also be set to block certain file types.

The software comes with more than 50 updated, built-in reports for administrators and can be used to create custom Deny pages, the pages that load when a blocked Web site is requested, to let companies refer employees to their company's acceptable use policy,

he says.

The list of blocked Web sites now stands at more than 2.3 million sites and is constantly growing due to the 40 researchers who work on it, Kessinger says. The list can be overridden by customers.

The software is built around a drag-and-drop interface for building rules. Rules can be quickly built or modified, he says.

SuperScout Web Filter 4.0 runs on Windows NT/2000 and Microsoft Proxy Server and will be available this week. The software costs \$23 per user based on a 100-user installation. Prices go down as the number of users rises. Customers can also subscribe to a frequently updated database that contains newly categorized Web sites for blocking. That database is free for the first year and costs \$1,150 per year afterward.

SuperScout E-mail Filter 3.5 performs

See SurfControl, page 28



More online!

Read about Microsoft's plans to offer e-mail filtering software.

DocFinder: 6429



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your grandma last year.**

**Isn't it time you networked
your data center?**

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Product specifications (the rocket science):

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**'NET
INSIDER**
Scott
Bradner



Will the wrong wireless succeed?

At one time it looked like there was a roadmap, a confusing one perhaps, but a roadmap nonetheless. Wireless Internet was going to be everywhere, but you were going to use different wireless technologies depending on just where you were. This original roadmap seems to be getting overtaken by events, and a far simpler one may be emerging.

The original wireless roadmap looked something like this: Local communications, say between your cell phone and palmtop, would use Bluetooth; connections to your office LAN would use 802.11; at home you would use HomeRF; and

when out wandering the world you would use 3G or maybe someday 4G. Come to think of it, I never did figure out how you or your mobile computing devices would know where you were so as to know what technology to use.

Each technology has been optimized for its particular role. Bluetooth is low power and short range (30 feet or so), and slow — less than 1M bit/sec.

Then there's 802.11, which offers a range of speeds from a few megabits per second to about 50M bit/sec at a few hundred meters. HomeRF only needs to cover a house and runs at a few megabits per second. The next-generation cell phone services, 3G and 4G, will offer a few megabits per second at distances of up to several miles.

But maybe optimization is not needed. Supporters of most of the technologies in this fuzzy picture might want to consider that "good enough" rather than "optimization" may just be taking over.

No, 802.11 is not just for office LANs anymore. It's showing up in classrooms, hotels, airports and Starbucks. You would expect this, since these environments have basically the same requirements as office LANs. It also should be obvious that for simple Internet access-type services, 802.11 would work just fine at home. But now 802.11 is starting to show up in places that it would not seem all that well suited for.

For instance, 802.11 is starting to show up as competition to cellular-based Internet connectivity such as 3G. See www.toaster.net/wireless/aplist.php for a list of San Francisco-area providers.

And with the improvements in the power efficiency of future generations of 802.11 chips, Bluetooth does not seem so important. While 802.11 is far from perfect, the current versions — 802.11b and 802.11a — have significant security and quality-of-service (QoS) issues, and having two versions could be a problem.

But dual-mode chips that support both versions are now shipping and the IEEE, the developer of 802.11, is busily working on security and QoS improvements. (IEEE documents are now available for free at <http://grouper.ieee.org/groups/802/11/>).

Indeed, 802.11 is yet another example of generalization winding up being more important than optimization. In this case, there may be rough times ahead for providers of more ideal solutions such as Bluetooth, HomeRF and, most dramatically, 3G, where the \$150 billion spent for frequency licenses may have been mostly wasted.

Disclaimer: Wasting \$150 billion is beyond even Harvard's ability, and the above is my opinion.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Clarify

continued from page 25

Naor touted the compatibility between Amdocs clientele and Nortel's Clarify base of about 600 customers, 40% of which are telecom service providers. As for the remaining 60%, Amdocs says it will farm out management of its enterprise accounts to capable third parties. But details about these partners are slim.

"Over the next 12 months, we will progressively manage the enterprise market and product

a quarter of which will be derived from enterprise activity.

According to Naor, Amdocs will continue to develop the Clarify CRM line, with an eye toward the needs of its communications customers. Amdocs will make new products available to its third-party service partners, from whom customers will gain access to new versions of software.

Amdocs' goal is to provide a preintegrated suite of CRM and billing tools for front-office and back-office functions. Clarify's customer contact, call center

which will simplify integration, they say.

It wasn't that long ago Nortel had grand plans for Clarify. In 1999, Nortel bought Clarify in a stock transaction valued at \$2.1 billion. The deal was intended to improve integration between call center applications and infrastructure. It followed Nortel's August 1999 acquisition of Periphonics, an interactive voice-response vendor. The combination of Nortel's telephony hardware, Clarify's call center software and Periphonics voice-recognition software was to position Nortel as a single source for full-service corporate call centers.

But Nortel never did deliver an integrated, out-of-the-box, call-center system, says John Ragsdale, research director at Giga Information Group.

This month's sale put an end to months of speculation about Nortel's plans for its CRM division, which has floundered under Nortel's watch.

"Nortel not only gutted the company in terms of forcing out or otherwise causing to leave the majority of qualified people who could really push the product and market it, but they also destroyed the whole market recognition and market share of the company and did a pretty thorough job of it," says Joshua Greenbaum, principal at Enterprise Applications Consulting.

"I wish Amdocs all the best, but unfortunately they've bought some really troubled assets at this point," Greenbaum says. ■

management and salesforce automation tools are a natural extension of Amdocs' auto management and marketing analysis tools, Naor says.

Already Amdocs has worked to integrate its software with Clarify's for Portuguese 3G carrier Oni Way and a U.S. carrier he would not name. Clarify's products are built on a component-based architecture using BEA Systems' Tuxedo platform, which Naor says Amdocs also uses.

Clarify has also been planning its migration to a thin-client architecture based on Java 2 Enterprise Edition (J2EE). Amdocs will continue to support this roadmap, executives say. Plus, Amdocs has already transitioned its own products to J2EE,

“... Unfortunately [Amdocs has] bought some really troubled assets at this point.”

Joshua Greenbaum

Principal, Enterprise Applications Consulting

through partners with the focus, knowledge and capabilities to support these sectors," Naor said. He declined to name the companies Amdocs is negotiating with for Clarify support, but acknowledged that Accenture — which has an existing relationship with Amdocs — is a good candidate to provide some or all of that support.

Naor expects the transition to third-party arrangements to be complete within 12 months. Until then, Amdocs won't court new corporate customers, he says.

Even after the 12-month transition, enterprise sales will not be a primary focus for Amdocs. Naor expects Clarify to generate 2002 revenue of roughly \$100 million,

SurfControl

continued from page 25

much the same function as its Web counterpart, acting to block e-mail based on its contents or the files attached to it. The new version adds support for filtering internal e-mails via a plug-in to Microsoft's Exchange 5.5 mail server, blocks spam and e-mail suspected to be spam with Risk

es, spam and rumors, she says.

Along with filtering based on words, SuperScout E-mail can block messages with attached image files, she said. The software's Virtual Image Agent can examine images and the proximity of combinations of colors and shapes, thereby more accurately determining whether objectionable material is contained in the file and whether it should be blocked, she said. Blocked or questionable e-mail can be held in a "quarantine" area for later examination by administrators, Trudeau says. This feature can also be used for bandwidth management to send nonessential e-mails at off-peak usage hours, she added.

SurfControl competes most closely with Symantec and McAfee.

SuperScout E-mail Filter 3.5 runs on Windows NT/2000 systems, although a separate server is recommended for the software. The software will be available Oct. 15 at \$30 per user for 100 users. A subscription to the Risk Filter service, which offers a spam database, costs \$1150 per year, although it is free for the first year.

SurfControl: www.surfcontrol.com

Costello is a correspondent with the IDG News Service in Boston.

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attachment with a
joke screen saver is
the same size as**

160

plain text e-mails.

SOURCE: SURFCONTROL

Filter, and aims to improve the accuracy of its blocking with the new LexiMatch context-sensitive scanning tool and the Virtual Image Agent, which determines whether an image contains inappropriate material or not, says SurfControl's Paris Trudeau.

LexiMatch lets the software perform Boolean searches (searches that involve the use of words such as "and," "or" and "near" as modifiers), thereby decreasing the number of instances in which the filters incorrectly block or let content through. The technology can be used to block chain letters, hoax-

■ **More information
about SuperScout E-mail
filter and other e-mail filtering software. PAGE 53**



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Short Takes

■ **Williams Communications** last week unveiled a private line service that lets customers choose how much reliability they want on their private line WANs. Called **Private Line QoS**, the service gives users four options — platinum, gold, silver and bronze. Platinum, the highest level, includes 100% availability. Each service comes with service-level agreements and varying credit schemes for noncompliance. All of the services will run over Williams' optical infrastructure. www.williamscommunications.com

■ **WorldCom** last week launched an online customer care center that permits its clients to monitor their network status and complete administrative tasks over the Internet. The portal also lets customers order services. It also provides system analysis tools for customers to track how traffic flows along their data, Internet and voice networks. Customers will also be able to monitor service-level agreements and modify network connections in response to changes in network use. Most of the applications are free, but a fee is charged for a few of them. www.worldcom.com

■ Internet domain registry and security specialist **VeriSign** has entered into an agreement with **RealNames** to offer its address services through VeriSign's network of domain name registrars, the companies announced last week. VeriSign and its registrars are responsible for the registration and administration of Internet addresses ending in .com, .org and .net.

The addition of the RealNames services will allow users to register Internet "keywords," which are basically simplified and easy-to-remember Internet addresses. As part of the deal — for which terms were not disclosed — VeriSign's 90 domain name partners can resell RealNames keywords.

Akamai allies with server vendors

Agreements with IBM, BEA highlight effort to ease demands on data centers.

■ BY JENNIFER MEARS

CAMBRIDGE, MASS. — Application server vendors are teaming with content-

delivery network service provider Akamai Technologies to make it easier for companies to move more content and applications out of origin servers, reducing de-

mands on in-house systems.

Earlier this month IBM announced that its WebSphere e-business software would integrate with Akamai's EdgeSuite service, which lets companies deliver not only static content but also dynamic content and applications from the network's edge. That announcement followed similar news a week earlier that BEA Systems and Akamai were aligning to provide integration between BEA's WebLogic E-Business Platform and Akamai's network of nearly 12,000 edge caching servers.

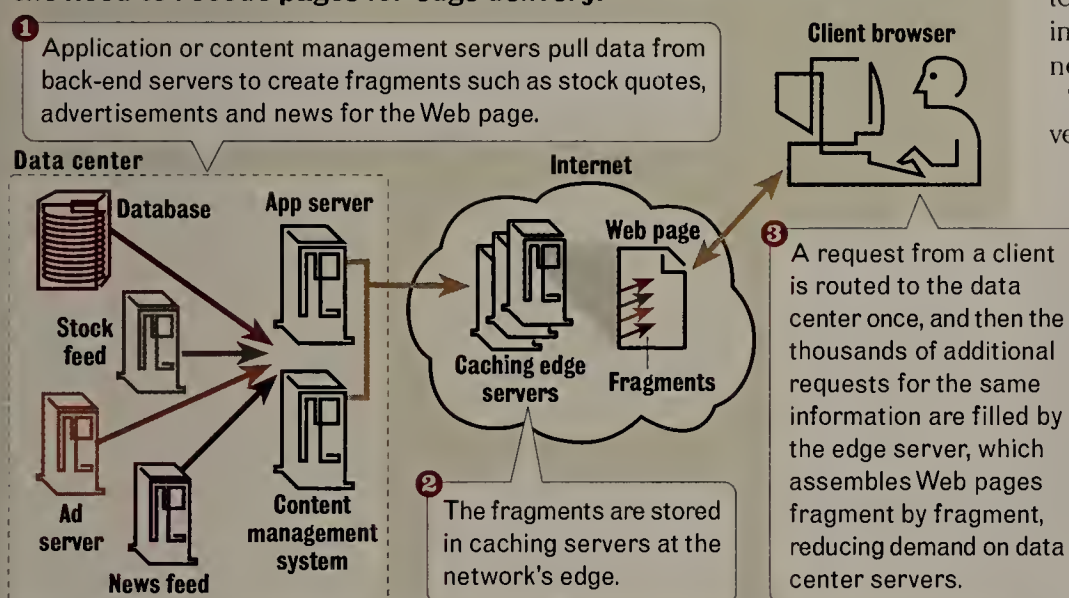
The alliances illustrate a trend toward vendors and companies placing more demands on the public infrastructure as businesses leverage the Internet for more complex applications and transactions, analysts say.

"It's about turning CDNs into application-delivery networks," says Neal Goldman, an analyst with The Yankee Group. "It's about being able to move processing outside of the central data center, [where] as sites get bigger you have scalability issues."

"And by being able to off-load
See Akamai, page 34

Benefits of Edge Side Includes

A new markup language called **Edge Side Includes** enables applications and content to move seamlessly from origin to edge servers, eliminating the need to recode pages for edge delivery.



AT&T Wireless expands network

\$4.7 billion deal to land full ownership of affiliate TeleCorp PCS.

■ BY DENISE PAPPALARDO

Industry experts say AT&T Wireless stands to expand the reach and attractiveness of its mobile network by shelling out \$4.7 billion worth of stock to acquire wireless service provider TeleCorp PCS.

AT&T Wireless already held 23% of TeleCorp PCS, but now the company is maneuvering for full ownership.

Eddie Hold, director of telecommunications services at consulting firm Current Analysis, says the deal announced last week not only expands the AT&T Wireless network but also gives the company more control.

"It's not just coverage; it's quality," Hold says. "It's important to own the network... especially as data services become more widely used. Owning the network allows

AT&T to better control the quality of its services."

In addition, more users will be able to do all of their calling on the AT&T Wireless network and avoid roaming on other service provider networks, which is peace of mind that national providers should offer customers, Hold says.

TeleCorp PCS's network will allow AT&T to expand its network by 20%, primarily in the Southeast and the Midwest, says John Zeglis, CEO at AT&T Wireless. Some of the most populated locales where TeleCorp PCS has wireless coverage include: Baton Rouge, La.; Birmingham, Ala.; Des Moines, Iowa; Jackson, Miss.; Knoxville, Tenn.; Lexington, Ky.; Little Rock, Ark.; Louisville, Ky.; Madison, Wis.; Memphis, Tenn.; Milwaukee; Mobile, Ala.; Nashville; New Orleans and Puerto Rico.

Additional spectrum and network reach is important to national wireless carriers as they gear up to offer 2.5G and 3G services.

AT&T Wireless has upgraded its Time Division Multiple Access (TDMA) wireless network to global system for mobile communications (GSM) general packet radio service (GPRS) in four cities. The upgrade increases mobile wireless data transmission speeds from 14.4K bit/sec up to 56K bit/sec. The service provider says it will have 40% of its TDMA network upgraded to GSM and GPRS by year-end with the rest slated for upgrade by the end of next year.

"We feel good about our spectrum needs," Zeglis says. "Right now we have enough spectrum to go to GSM, GPRS and to [Enhanced Data for GSM Evolution] in virtually all of AT&T's top 100 markets."

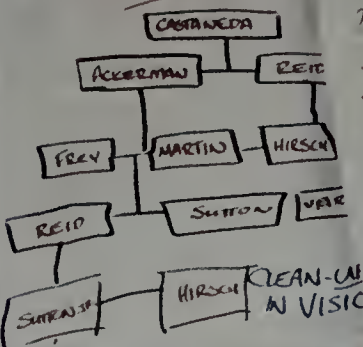
See AT&T Wireless, page 34

FEEDBACK

NAMES FOR PRINT PUB (ONLINE CONTEST?)

- BINT - THE COOKER
- CHEN - BLAZE UP
- ZINE - CONFIGURATION
- DIGITAL PHOENIX
- SPARK PUB - NEW
- FIREZONE
- FIREZINE

PROJECTED ORG CHART



EXISTING WEB OFFERS

1. TRIAL DEMOS
2. 1/7 SUPPORT
3. FILE DOWNLOADS
4. 24 HOURS SUPPORT
5. 24 HOURS SUPPORT
6. AUTOMATIC E-MAIL UPDATES
7. P.D. REPORTS (NON-THREATENING)
8. FREE TECHNIQUES W/ SHIP UP

SEATTLE
SAN FRANCISCO
LOS ANGELES
DENVER
LANTA
LAS VEGAS
NEW YORK
CHICAGO
COVERED LAUL

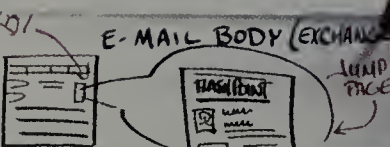
PRINTING SCHEDULE

- 07-02 ESTIMATE APPROVED
- 07-06 TO PRINTER
- 07-09 PROOFS INTERNAL
- 07-11 COMMENTS + PRINTER
- 07-16 2nd Round PROOFS
- 07-18 FINAL PROOF APPROVAL
- 07-23 PRINTING, DE-CUT
- 07-24 FOLDING, COATING
- 07-27 DELIVERY

4 WEEKS PRODUCTION SCHEDULE (MINIMUM)

PRESENTATION MATERIALS

- * CONFERENCE ROOM
- LAPTOP
- PROJECTOR
- FLIP CHART
- ANIMATED PPT DE
- HARD COPY
- PADS
- PENS
- WINDOW

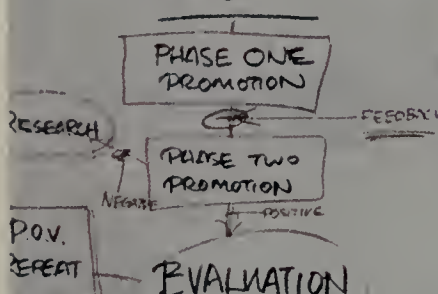


- GOLD OR PL
- CO-OPT W
- FREE UP

- SCHEMATICS
- VARIABLE CAPACITY
- INTERFACES

* ALL ABOVE TO CONTRACTOR

PROMO PROCESS



RESEARCH
NEGATIVE
POSITIVE
P.O.V.
REPEAT

- 8:30 AM - coffee & Pastries
- 9:00 AM - CONVENIENCE
- 9:30 AM - Strategy Overview
- 10:00 AM - Methodology
- 10:30 AM - Results
- 11:00 AM - ACTION PLAN
- 11:30 AM - Quantify Results
- LUNCH -

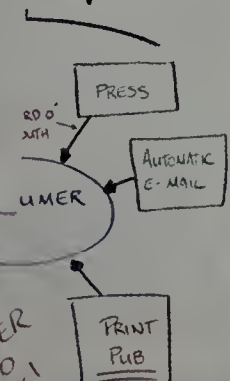
5) GEOGRAPHIC REGION

6) PURCHASE VOLUME

7) REGENCY OF PURCHASES (OVER LAST SIX MONTHS)

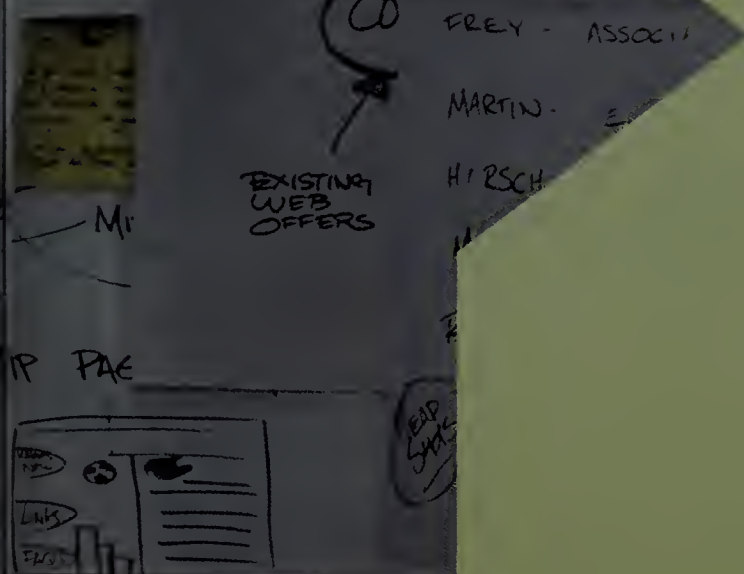
REGIONAL PROMOTION

MIND

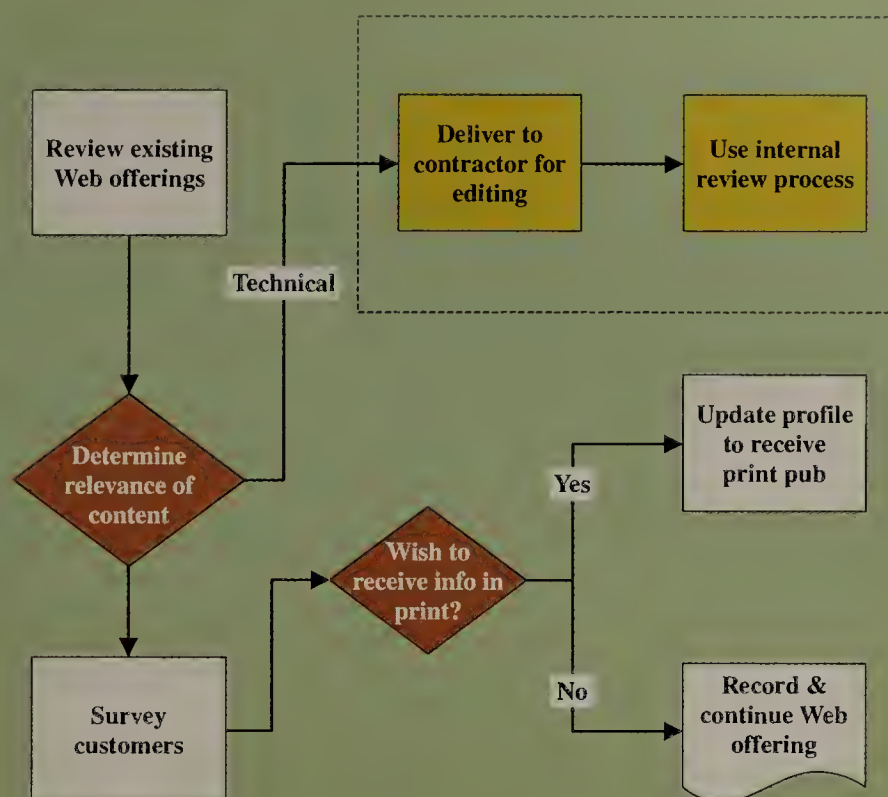


PRESENTATION MATERIALS

- CONFERENCE ROOM
- LAPTOP
- PROJECTOR
- FLIP CHARTS
- ANIMATED PPT DECK
- DECK
- PAD
- PEN
- WII



See what I'm saying?



There was a particular stroke of genius early in this brainstorming session. New Microsoft® Visio® 2002 allows you to quickly and easily organize your ideas and present a clear-cut plan of action. Create crystal-clear flowcharts, timelines, organizational charts, even detailed floor plans, all in an intuitively designed, easy-to-use program. With Visio your ideas become easily understood solutions. And with the flexibility to save Visio diagrams as Web pages or to use them in Microsoft Office documents and e-mail, you can get your point across just about any way you choose. To give it a try, visit microsoft.com/visio or go to Internet Keyword: Microsoft Visio. Software for the Agile Business.

Microsoft

EYE ON THE CARRIERS

Lisa Pierce



Have you ever been approached by a company to review the accuracy of your telecommunications services bills?

Typically, these companies promise to uncover billing inaccuracies in exchange for a percentage of the monies due. That cut can be as high as 50% of "discovered" savings. And, in addition to high fees, customer satisfaction with such firms has been mixed.

These companies are not needed if an organization's telecommunications staff regularly reconciles bills. Everyone should, of course. For instance, one Giga client recently discovered its competitive local exchange carrier was charging federal, state and county excise rates based on tariffed prices, instead of on the discounted prices it had negotiated.

Don't rush to farm out the review of bills

Unfortunately, a thorough, internal review is not always possible. In its absence, third-party review of telecom services bills may be appropriate on a limited basis, especially for organizations facing one or more of the following problems:

- **Frequent changes in access:** These changes include additions and terminations. It is not uncommon for customers to continue to be billed for access lines and trunks that have been disconnected, even though the disconnects occurred many months — or even more than a year — earlier.

- **Frequent changes in service(s):** These changes include adding or dropping a particular service or feature for each site; adding new phone numbers; and adding or dropping users of particular services and features (pagers; wireless phones; VPN accounting or authorization codes; changes in billing and call detail reports; changes in users who access carrier service and network management systems and others). The responsibility to authorize, track and reconcile such modifications should fall on the shoulders of a select group of people who essentially

become life-cycle managers. A monthly review of such events with the carrier's account team is highly recommended.

- **The discount rate for a service is tied to the current tariffed rate or list price, and is constantly adjusted over time as the reference rate adjusts:** This becomes more complicated if the effective price of the service is also pegged to short-term price promotions.

Unless the above problems are particularly severe, it is better to redirect internal resources to uncover billing discrepancies and recover monies due from telecom carriers. Given those 50% fees, if your staff finds just half of the potential savings a third party would find, the financial return is the same as if an outside firm had been used.

However, customers considering using an outside firm's services should also consider following these practices:

- **Obtain references of recent satisfied customers whose network resembles your own.**

- **Speak with recent users whose network and needs resemble your own.** What did they find useful and not useful about

this approach?

- **Don't use the services of a company that expects you to recover the money from the carrier; make the vendor responsible for obtaining that refund.** If a contingency fee is negotiated, only agree to pay it after obtaining the refund. Payment of contingency fees should be the exception; instead, pay for services on a time- and material basis.

- **Explicitly limit the outside firm's activity to perform a particular task, or only at a particular interval, such as two-thirds of the way through your current telecom contract.**

Don't use its services on a continual, open-ended basis.

Review monthly bills and calculate the effective rate and compare it with pricing and tariff information supplied by the account team. Compare all this with the contract's terms, and ask your account team for written explanations/resolution dates. Hold them to it.

Pierce is a research fellow at Giga Information Group. She can be reached at lpierce@gigaweb.com.

Akamai

continued from page 31

more processing to a CDN, you have to pay less for infrastructure," he adds.

Both application server products interoperate with Akamai's EdgeSuite service by incorporating a new markup language called Edge Side Includes [ESI]. Developed by Akamai and Oracle, ESI is an HTML-based markup language that defines fragments of Web pages, allowing them to be assembled and updated at the network's edge. The technology was recently published as a World Wide Web Consortium (W3C) note, which is an acknowledgement from the consortium that the technology was submitted and may be acted on, although there is no guarantee it will be endorsed by the W3C.

Akamai executives say the benefit of ESI is that it provides flexibility by letting companies develop Web applications once and then deciding when the application is deployed and where it should be assembled.

Taking a load off

For example, a retail Web site incorporating ESI could construct individual Web pages using ESI-defined fragments that could then be pushed out to the network's edge and assembled based on geographic location. If a user is in New York, the CDN will serve one advertisement, and if the user is in Washington, D.C. it will serve another, without having to route the request back to an origin server.

"ESI allows the edge node to do that processing, and you get to move the processing closer to the user and therefore not burden the origin server with as many mundane processing requests," Goldman says.

As companies seek to use decentralized architectures to support Web operations, the ability to

move application elements between pieces of the infrastructure is critical, says Rob Batchelder, research director at Gartner.

ESI is helping vendors do that. Akamai and Oracle unveiled ESI in April, and a month later a cross-section of vendors, including BEA and IBM, announced their support and involvement in writing the proposed standard language. Oracle has integrated ESI into its 9i application server, and more vendors — including those in the content-management, commerce-management, and application-development markets — will announce integration with ESI soon, says George Kurian, an Akamai vice president.

Others getting on board

Other CDN service providers, including Digital Island and Mirror Image, are supporting ESI. Speedera plans to support ESI in the first quarter of 2002, says Gordon Smith, a Speedera vice president.

While those three vendors say ESI will be an important piece to future edge computing technology, they're also working on their own approaches.

Mirror Image, for example, in a few weeks will announce support for Web services standard languages to enable distribution and transaction processing at the edge, says Bob Hammond, a Mirror Image vice president.

IBM is scheduled to release a beta version of the ESI-enabled WebSphere software early next year. BEA expects to have ESI integrated in its next release of WebLogic, planned for the first quarter of 2002.

However, IBM and BEA customers, can take advantage of JESI, a Java-based tag library for ESI, now. The JESI library can be accessed on the Akamai site at <http://developer.akamai.com>. ■



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Read how content delivery is taking on an enterprise role.

DocFinder: 6427

Wireless expansion

AT&T Wireless is planning to buy TeleCorp PCS for approximately \$4.7 billion.

PROFILE: TELECORP PCS

Location:	Arlington, Va.
Service:	Offers mobile wireless services in 78 markets primarily across the Southeast and Midwest.
Network:	Company operates a Time Division Multiple Access wireless network.
Employees:	2,800
Fast fact:	AT&T Wireless already owns 23% of TeleCorp PCS.

AT&T Wireless

continued from page 31

EDGE will allow users to support data speeds up to 144K bit/sec.

AT&T Wireless' next step is to upgrade to Universal Mobile Telecommunications System (UMTS), a 3G standard that supports 384K bit/sec up to 1M bit/sec. Zeglis says the company has enough spectrum to deploy UMTS in 70 of the top 100 markets.

This is without resolution of the legal battle over the NextWave spectrum, which AT&T Wireless expects in the near term. Alaska Native Wireless, an AT&T affiliate, along with several other providers including Verizon Wireless, Cingular and VoiceStream, all bid on the NextWave spectrum in an auction that the

Federal Communications Commission held earlier this year. This spectrum has since been the subject of court battles and debate.

Once the NextWave spectrum issue is resolved and Alaska Native Wireless receives its spectrum, AT&T Wireless says it will have enough spectrum to deploy UMTS in 90 of its top 100 markets.

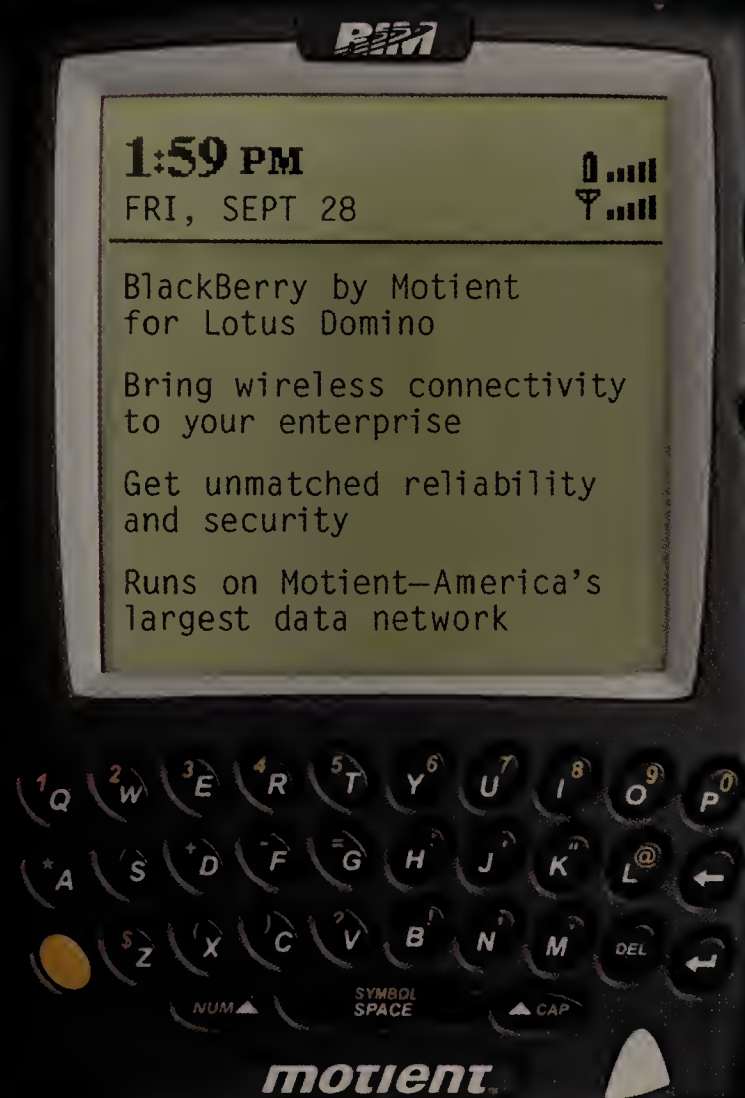
While TeleCorp PCS also operates a TDMA network, it has not yet started to upgrade its network, but the company is testing the 2.5G products, says Jerry Vento, CEO of TeleCorp PCS. ■



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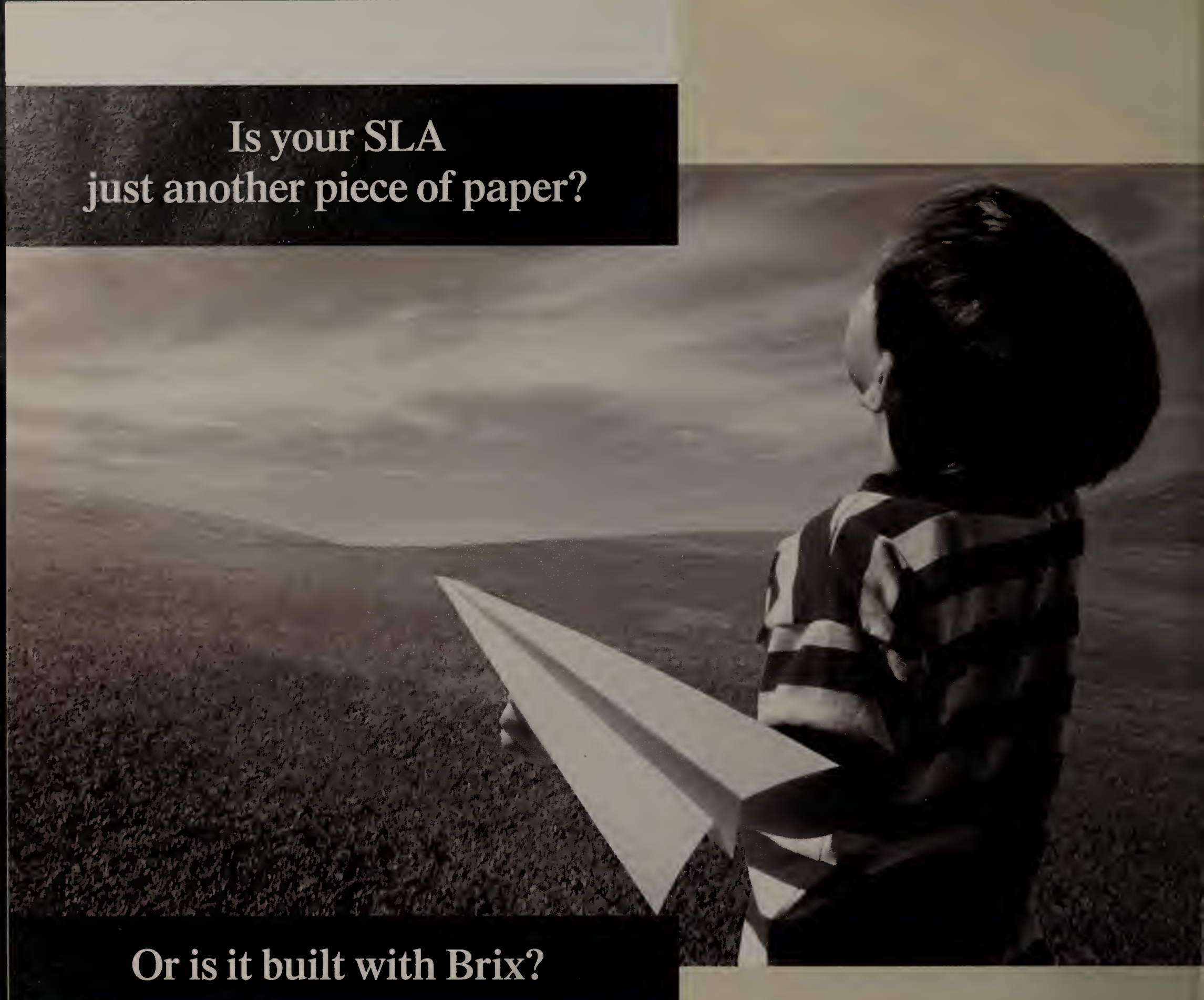


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The Edge

■ SERVICE PROVIDER DEVELOPMENTS
AT THE JUNCTURE BETWEEN THE ENTERPRISE
AND THE NEW PUBLIC NETWORK

MSPPs, next-gen SONET mixing signals

■ BY TERRI GIMPELSON

There's a hot new product category emerging in the industry, but no one seems to know exactly what it is.

Some call it next-generation SONET, while others call it the Multi-Service Provisioning Platform (MSPP). And because neither term has been clearly defined, vendors are making up their own definitions and claiming to be market leaders.

MSPPs combine transport, switching and routing platforms into an integrated system with which service providers can offer new bundled services flexibly and at lower cost. By incorporating many service interfaces in one box, MSPPs are said to eliminate the need for extra devices to deliver intelligent optical services.

Vendors also claim MSPPs improve

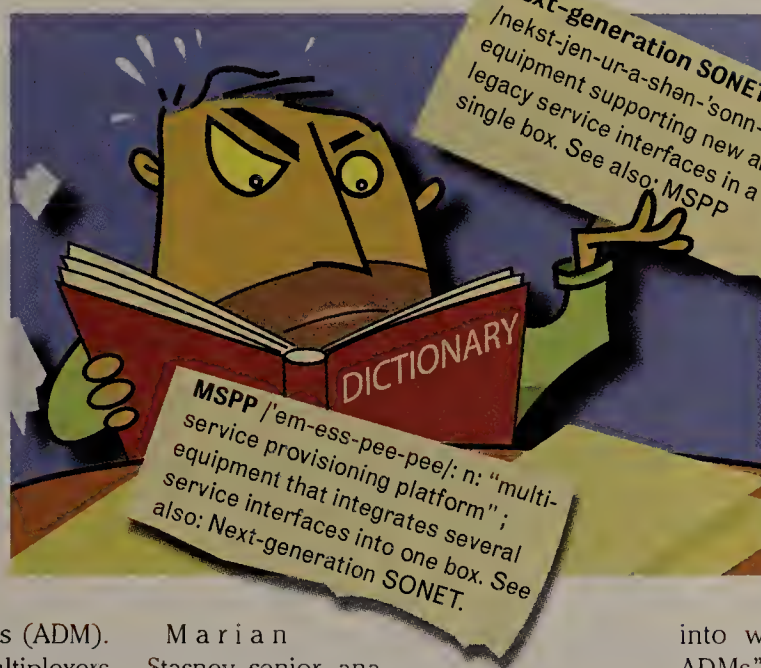
SONET's efficiency in transporting multiservice traffic.

However, next-generation SONET platforms are touted to do much the same thing, depending on whom you ask. IDC Research Analyst Sterling Perrin says MSPPs grew out of the next-generation SONET market.

"The MSPP category is really an umbrella category that includes next-generation SONET," he says. "The lines are blurry between the two and because of that, there's a lot of confusion within both spaces."

Perrin says original next-generation SONET boxes were single-platform SONET add/drop muxes (ADM). They were all time-division multiplexers (TDM) with an integrated cross-connect capability, and Ethernet capabilities made possible through a service interface, he says.

"Then MSPP start-ups started emerging and taking this model and throwing all kinds of other functions into it, like Layer 2 switching and Layer 3 routing," Perrin says. "That's when the question of where to draw the line as an MSPP came up."



Marian Stasney, senior analyst with The Yankee Group, says there are a couple of criteria a box has to meet before qualifying as an MSPP.

"An MSPP box has to have a separate circuit for each service and a switching fabric for each type of traffic," she says. "A next-generation SONET box operates strictly at Layer 1: ADM, optical cross-connects and dense wavelength division multiplexed [DWDM] back end. MSPPs include switch-

ing and perhaps routing functions."

Some vendors, including Astral Point, say that MSPP and next-generation SONET are two different categories. "MSPP is a shopping mall of services that can be used to access the carrier network," says Bill Mitchell, Astral Point's chief marketing officer. "Next-generation SONET only encompasses commonly occurring transport elements."

"It's like a limited access highway," he says. "It's not ambitious in adding new technologies into well-known products like SONET ADMs."

Asked what category the company falls into, Mitchell says Astral Point's ON7000 Integrated Optical Transport Node qualifies as a next-generation SONET platform.

Nortel also views next-generation SONET and MSPP as separate and distinct markets, and clearly favors the former.

"Next-generation SONET works with what speeds are out there and drives them into a

See MSPP, page 38

Takes

■ Former Cisco Executive Vice President Gary Daichendt has joined the board of directors of **Packet Design**, a network start-up formed last year by four-time entrepreneurs and ex-Cisco executives Judy Estrin and Bill Carrico.

Estrin met Daichendt when she was Cisco's CTO and he was executive vice president of worldwide operations. Daichendt left Cisco in 2000 after six years at the company.

Packet Design develops a variety of network-oriented technologies designed to enhance the performance, scalability and manageability of the Internet infrastructure. Packet Design licenses these technologies at the prototype stage or spins them off as separate companies.

■ Start-up **Acme Packet** announced it has raised \$16 million of second-round funding, led by Menlo Ventures and including Canaan Partners. Acme Packet is developing products designed to let network service providers transport interactive voice, video and multimedia applications across and between IP networks.

Unisphere adds voice for ATM

■ BY TIM GREENE

ATLANTA — Unisphere Networks this week is unveiling support for ATM on its media gateway, enabling service provider customers to support voice over ATM.

At the Voice on the Net (VON) show in Atlanta, Unisphere will introduce an ATM module for its SMX-2100 media gateway, which already supports time-division multiplexed (TDM) voice and voice over IP. The ATM blade will let the SMX-2100 support voice over all major types of carrier infrastructure.

The media gateway sits between a traditional public phone network and a packet network, translating traffic between the two under instructions from software running on a softswitch, such as Unisphere's SRX-3000.

The ATM capability is important to larger existing local carriers to offer packet voice, says Jim Lawrence, an analyst with Stratecast. These carriers have set up ATM-based networks for data services, and may want to offer voice over the same network to save costs. To migrate from TDM to ATM voice requires media gateways that can handle TDM and ATM, he says.

Many start-up carriers that base their networks on IP require TDM and IP interfaces. But these newer carriers are operating on borrowed money and may be strapped for cash to buy voice gear, Lawrence says.

Now hear this . . .

Unisphere Networks is announcing features for its switching gear that help support voice-over-packet networks.

Resilient Telco Platform:

Allows Unisphere SRX-3000 Softswitches to keep phone calls alive even if the primary softswitch server fails.

Rich Media software for ERX router:

Lets packet voice traffic avoid congestion on an IP backbone.

ATM blade for SMX-2100 media gateway:

Lets incumbent carriers that have established ATM networks offer voice-over-ATM services.

"Right now, there is a reduced set of customers" for the Unisphere media gateway, Lawrence says.

So the new ATM capability may give sales of Unisphere's media gateway a shot in the arm because it might appeal to incumbent carriers that have more money to spend, he says.

The two-port OC-3 card supports private virtual circuits, switched

See Unisphere, page 38

Cisco RTP engaged in service provider R&D

■ BY JIM DUFFY

RESEARCH TRIANGLE PARK, N.C. — A little more than a year after disbanding its IBM product development and marketing operations in Research Triangle Park, Cisco has made a full transition to service provider research and development.

Of the 350 engineers and marketers once working on IBM SNA products in Cisco's former IBM Interworks division, only 50 remain. And they're working on "featurettes" to sustain the installed base of Cisco's SNA products.

The other 300 are working on packet telephony, mobile wireless, security products for service providers and "inside" sales, which assists Cisco channel partners in turning leads into sales.

"We're serious about this business and in the service provider opportunity," says Ed Carney, who assumed the role of site executive at Cisco's Research Triangle Park facility 14 months ago. Carney succeeded Selby Wellman, who stepped down after a wildly successful five-year tenure overseeing the IBM Interworks business unit (www.nwfusion.com, DocFinder: 6426).

Carney knows plenty about the service provider opportunity because in addition to managing the Research Triangle Park facility, he is vice president of Cisco's Networked Solutions Integration Test Engineering (NSITE) laboratories. NSITE is a \$200 million, 20,000-square-foot laboratory that emulates a central office and puts service provider systems through their paces.

The NSITE lab surrounds Cisco routers, switches, servers, cable headends, DSL access multiplexers and dial-access gear with \$25 million worth of non-Cisco telecom equipment: signal transfer points, Class 4 and 5 switches, digital cross-connects and PBXs. NSITE personnel configure central office systems to the specifications of service providers and then deluge them with 250,000 calls per minute from a bank of analog call generators.

"I break it, my team breaks it, and my customers don't," Carney says.

Cisco Research Triangle Park facility at-a-glance

Cisco is focusing on service provider R&D after five years of IBM SNA product development:

RTP campus statistics:

Nine occupied buildings, with three "moth-balled" and three more "cold-shelled." Options for 170 more acres.

Operations: Packet telephony, mobile wireless, customer assurance, inside sales, last vestiges of IBM Interworking division.

Employees: 2,800; occupancy at 58%

Management: Ed Carney, site executive

Milestones:

- Twelve engineers developed PXF "Toaster" chip.
- Sold 4 million voice-over-IP ports (May 2001).
- Assisting in Sept. 11 terrorist attack recovery and relief efforts.

Cisco conducts 2,600 test-case scenarios every 24 hours in the NSITE lab, Carney says. During the past two years, NSITE tested central office system configurations from 150 service providers from all over the world.

NSITE is the only Cisco lab of its kind in this hemisphere and only

one of four at Cisco.

But analysts say the quarter-billion-dollar lab is the price of entry into the service provider realm. Cisco will have to show service providers a lot more to win their trust and business than it has since focusing aggressively on this market in 1995.

"The thing that really separates [corporations and service providers] is the amount of support that you give them, the ease by which your product can be tailored to their needs," says Frank Dzubeck, president of Communications Network Architects in Washington, D.C., and a *Network World* columnist.

The task is not lost on Cisco, especially when focusing on incumbents and the regional Bell operating companies after initially targeting alternative service providers six years ago.

"The first thing we need to do is earn the right to do business with them, earn credibility and their respect," says Bill Nuti, Cisco senior vice president in charge of worldwide service provider operations.

That message includes developing a business case for introducing new IP- and packet-based data services and infrastructures into a proven, revenue-generating network on which incumbent local exchange carriers and inter-exchange carriers depend. Another is helping them bring new services to market.

Corporations want mobile wireless services that let them maintain sessions as they roam from wireline to a variety of wireless networks. They also want Session Initiation Protocol (SIP)-based packetized voice services that open a slew of advanced IP telephony applications.

At Research Triangle Park, Cisco has and is developing mobility software that enables roaming and session integrity between wireline Ethernet and wireless 802.11 and Global Packet Radio System (GPRS) LAN and WAN networks and network operators. For example, an FTP download begun while a laptop was attached to an Ethernet LAN can be resumed from the point of disconnection if the user unplugs and roams from the Ethernet LAN to a 802.11 wireless LAN and then to a GPRS WAN.

On the packet telephony side, Cisco is developing SIP gateways to let its current H.323 customers accept SIP calls. Getting service providers to use SIP may be a tall order, however. Four — China Unicom, iBasis, ITXC and Genuity — have carried at least 1 billion H.323-based voice-over-IP minutes to date, 90% of which were in the past year.

But based in part on the activities at Research Triangle Park, Cisco's not worried about new technology acceptance.

"We're much more confident in our ability to bring products to market," Nuti says. ■

Unisphere

continued from page 37

virtual circuits and the ATM Adaption Layer Types 1, 2 and 3 standards. It will be available by year-end.

Unisphere is also announcing software for its ERX switch router and media gateway that lets the media gateway recognize and help manage network congestion. Without this capability, routers between the media gateways and the core of the network would be the first devices to know about congestion.

This Rich Media Feature Pack for the Unisphere media gateway uses Multi-protocol Label Switching to learn about congestion. It lets the gateway set the type of service bits in IP packets so they receive appropriate priority as they pass through routers in the network, a process Unisphere calls Voice Express Queuing.

This capability is essential for delivering good quality voice, Lawrence says, but no standard is set. "There isn't any simple way to do it," he says.

Unisphere is also announcing at VON software for its SRX-3000 Softswitch that keeps calls alive during certain hardware failures. The softswitches operate on Sun servers that can be clustered to back each other up. But currently if one fails, calls are dropped and have to be reestablished.

Unisphere's Resilient Telco Platform (RTP) is middleware that provides software-based call backup to hardware failures. The failover is undetectable to callers, Unisphere says.

Unisphere: www.unispherenetworks.com

MSPP

continued from page 37

single, cost-effective aggregation point," says Joe Padgett, Nortel's director of marketing, optical markets.

"What we're seeing are these God-boxes in MSPP. They're not granular, they don't support higher speeds, and they don't offer a smaller footprint," he adds.

On the other hand, Cisco says the two terms define the same category, but the categories are also a function of the definitions used. It claims its ONS 15454 metropolitan optical system qualifies as an MSPP and a next-generation SONET platform.

"There's an industry trend that's moving from SONET to multiservice and then embracing wavelengths in metro DWDM," says Rob Koslowsky, Cisco director of marketing, optical transport. "The driver [is] to embrace existing TDM services and handle higher bandwidth needs, but also to transition from voice-centric to data-centric."

Appian Communications says there's a subtle difference between MSPPs and next-generation SONET devices. MSPPs tend to support packet services more efficiently than next-generation SONET platforms. Next-generation SONET equipment has more port density, integrated ADM, grooming and

cross-connect capabilities predominantly for TDM, the firm says.

Another optical access vendor, Coriolis, says MSPPs typically integrate packet switching into its platforms and can handle ATM, Ethernet and frame relay circuits. Coriolis' OptiFlow system is apparently one such platform in that it integrates a packet-switching fabric and ATM-switching fabric in the same box.

Next-generation SONET equipment improves ATM circuit density, says Greg Wortman, Coriolis vice president of marketing.

"The Cisco ONS 15454 is the first of the next-generation SONET boxes," Wortman says. "Both Cisco and Ciena plug packet modules into their chassis. They don't actually integrate that service into their platforms. That's why neither is an MSPP."

Ciena's next-generation SONET box, the MetroDirector, integrates grooming and switching elements, and "provides basic SONET/TDM functionality in a higher-density rack-space and a lower cost while also providing support for Gigabit Ethernet and [ATM]."

Grier Hansen, optical and carrier infrastructure analyst for Current Analysis, sums up the ambiguity: "There is a lot of overlap," he says.

"That's why this has been such a problem. This is an impossible story to write, but one that needs to be written to help comb through the confusion," he adds. ■



More online!

Find out how MSPPs work in our Tech Update.

DocFinder: 6425

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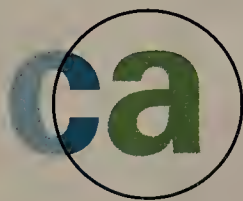
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Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

MPLS VPNs improve WAN connectivity

■ BY SPENCER GIACALONE

VPNs based on Multi-protocol Label Switching are an innovative way to connect network resources. Because MPLS VPNs are rapidly deployable and more flexible than current WAN connectivity services, such as frame relay, they can help businesses reach new markets and increase revenue.

MPLS VPNs are as secure as most WAN products and services and can provide enhanced quality of service (QoS), increased reliability and competitive prices.

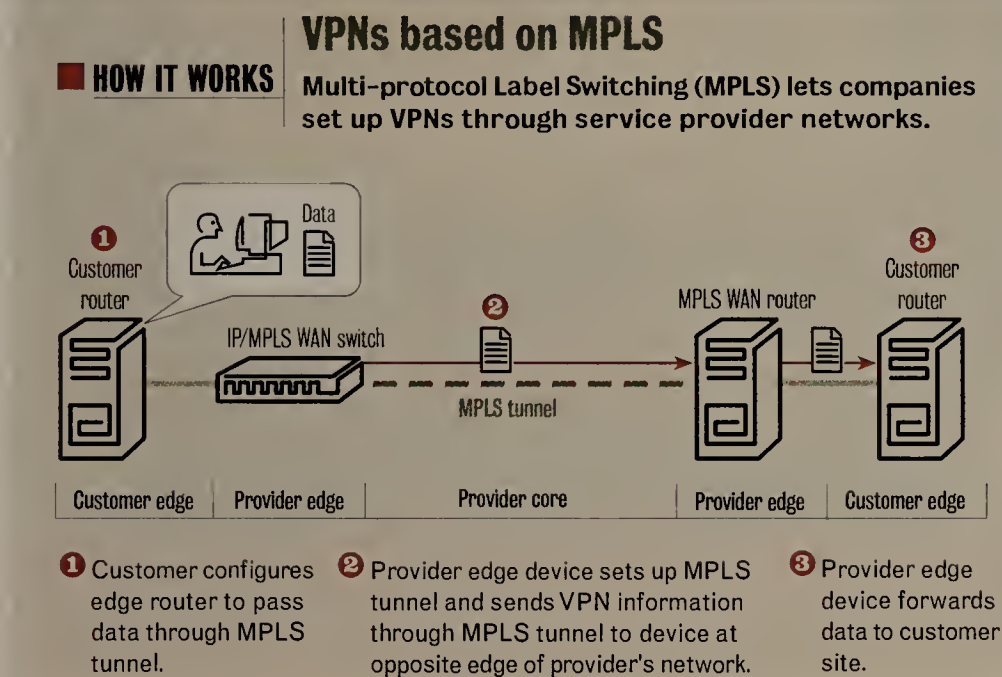
MPLS VPN services, which are usually purchased from service providers, can be broken down into building blocks, which include the customer edge, the provider edge and the provider core.

Getting into the MPLS VPN

From a network executive's perspective, the customer edge is the most obvious sign of an MPLS VPN installation. The customer edge, which typically contain access routers deployed at customer locations, siphons data into, and through, the MPLS VPN. To do this, customer edges run routing protocols or are configured to know about other VPN-attached sites.

For simplification, providers usually use customer edges built by the vendor of their other MPLS VPN gear. Some providers give network managers partial control of local customer edges.

The provider edge is the most complex component of an MPLS VPN, and is usually located at the provider's local office. Consisting of WAN routers or IP-enabled WAN switches, the provider edge has four roles: signaling the provider core,



communicating with other provider edges, interfacing with customer edges and forwarding data.

The first provider edge task, signaling, enables the provider core to build fault-tolerant Layer 2 paths between the provider edges. To do this, a provider edge sends MPLS setup information to the provider core. The resulting MPLS paths provide a direct data link between provider edges, each with QoS potential.

Next, using the interprovider edge MPLS paths, provider edges communicate VPN information using an updated version of the Border Gateway Protocol called Multi-Protocol BGP (MPBGP).

MPBGP advertises customer routing data. Unlike previous versions, it can convert conflicting IP routes into unique prefixes. MPBGP also classifies routes so that provider edges can control their addition to per-customer virtual routing tables (VRT).

VRTs permit customer data to be handled separately, and privately, by each provider edge. By adjusting routing on a per-VRT basis, VPNs can be changed with speed and flexibility. The combination of MPLS and MPBGP permits only provider edges (not the core) to understand customer networks, thereby increasing the VPN service's scalability and stability.

As routes enter VRTs, the provider edges make MPLS requests for each customer route over the existing interprovider edge MPLS tunnels. After receiving responses to the new MPLS signals, provider edges can send traffic to each VPN on each provider edge. Because VRTs and MPLS segregate data, MPLS VPNs have as much security as current WAN service offerings.

The provider edge's final tasks center on emulating a regular IP network to the customer edge. To do this, provider edges can advertise routing data to customer edges, while forwarding unlabeled IP packets to them. Conversely, when data arrives from a customer edge, per-VRT routing is performed, MPLS labels are added, and the information is forwarded toward the destination provider edge.

The final building block, the provider core, generally consists of IP-enabled WAN switches that provide MPLS connectivity between provider edges. To permit the construction of MPLS paths, core equipment runs routing protocols and arbitrates MPLS signaling. Because MPLS permits providers to integrate systems, operations can be streamlined, and these cost savings may be passed to network executives.

While complex, MPLS VPN services incorporate so many benefits that network managers should keep a keen eye on them. MPLS VPNs will eventually do even more: MPLS virtual private optical networking and MPLS SONET provisioning.

Giacalone is a principal consultant, and co-developer of VPN Solution Services for Predictive Systems. He can be reached at Spencer.Giacalone@predictive.com.

Ask Dr. Internet

By Steve Blass

In a recent column (www.nwfusion.com, DocFinder: 6424), you suggested RegEdit to change network settings. This may work, but I suggest you look at NetSwitcher to save network settings to a text file. Then you can load any configuration you require.

Several readers made this suggestion, so I went to www.netswitcher.com and found that NetSwitcher is an inexpensive (\$9) shareware application for Windows that lets you configure and use multiple network configurations very easily. The latest ver-

sion provides an extensive set of menus for controlling dial-up and network connection settings for each network adapter installed. After downloading, installing and launching NetSwitcher, save a copy of the current network configuration. This brings up a dialog asking for a name to use in the NetSwitcher location list. To add a second network configuration to the list, use standard Windows tools to reset your computer for the second network, and then use NetSwitcher's save button to save a snapshot of the new configuration.

Switching between network configurations is as easy as highlighting the setup you want in the "choose location" pull-down menu and clicking the apply button. Switching your network setup to Location 2 before powering down to leave Location 1 prepares your computer for booting in the Location 2 network environment.

Blass, a network architect at Change@Work in Houston, can be reached at dr.internet@changeatwork.com.

GEARHEAD
INSIDE THE
NETWORK
MACHINEMark
Gibbs

In the spirit of doing more with less (see editorial, page 46), this week we examine a way to remotely switch devices on and off or transfer small amounts of data without futzing with expensive network gear.

Our simple solution is X10, a venerable command-and-control network system.

You've probably seen the name X10 in those ubiquitous ads for wireless video from X10.com, a spinoff of the originators of the X10 standard. Well, X10.com has little to do with X10 products these days; it seems to make its money almost completely from low-end, surveillance-type video systems.

Be that as it may, X10 networking has been around for about 20 years. Pico Electronics of Scotland developed X10 as a home automation system and the first products were shipped in 1978. Since then, the original patent has expired and prices for X10-compatible devices have dropped sharply.

X10: A low-tech power-line net with high-tech uses

X10 technology is pretty interesting and relatively simple. It transmits signals over electrical power lines by inserting 120-KHz signal bursts, each 1 msec long, at the zero crossing of the voltage on a 60Hz 120V circuit. Each bit transmitted consists of two bursts; so a binary one is represented by a burst followed by a no-burst while a zero is a no-burst followed by a burst.

Obviously for this encoding to work, the bursts have to be framed. X10 uses a preamble or start code to indicate a packet start. This start code is the sequence "burst, burst, burst, no burst" — a combination that is unique because the first two bursts are neither a zero nor a one. Requiring the double burst to be followed by a binary one (burst, no burst) reduces the likelihood of a noisy system creating a spurious false start code.

Following the start code is the data. Being designed for home automation, the next four bits are the "house code" (which defines 16 groups of devices denoted "A" through "P") followed by a five-bit device code (16 devices — the least-significant bit of the code is zero) or function code (16 codes — the least-significant bit is one).

How devices interpret these codes is implementation dependent ("dim" would be meaningful to a light controller but useless to a device switching a relay on or off).

So what's the data rate? Well, because the bursts are transmitted at the zero crossings of the voltage cycle, one cycle is required for each bit, or a total of 13 cycles to transmit one X10 packet of 13 bits (four bits for the preamble and nine bits for the payload). In addition, each command is sent twice for reliability (power-line transmission is a notoriously noisy environment) and we have to insert a three-cycle delay after each pair of commands. For some strange reason, the function codes "bright" and "dim" (01011 and 01001, respectively) don't require the three-cycle delay.

Thus for 9 data bits we need 29 cycles, which works out to a data rate of 18.62 bit/sec except for the two exception codes that only need 26 bits so we can hit the maximum of 20.77 bit/sec. Check out www.x10.com/support/technology1.htm for more information.

What can we do with this system? Well, there's a ton of controllers and devices available (see www.smarthomeusa.com).

For example, we can interface a computer using the IBM Home Director Kit (around \$40), and install X10 light switches (\$10) so we can automatically dim the computer room lights in the evening. Adding a X10 PIR motion detector makes it possible to automatically switch on the lights when someone enters the room. With an X10 plug-in power module (\$13), you can, on schedule, power cycle that DSL modem that hangs up every day in the early hours.

There are also all sorts of other X10 devices available for controlling high-power devices, amplifying signals, bridging X10 signals across power-phase legs and analyzing X10 signaling.

Now if you want to do a custom control job, you can use a one-way (receive-only) or two-way (send and receive) interface module along with a computer interface and control relays, interface to serial ports or whatever strange and wonderful service you can imagine. You can even use the X10 system to send and receive data. You could even overlay IP on top of an X10 connection ... hmmm.

So how about integrating an X10 system with really smart software that can also extract data from the 'Net? Next week, we'll do just that. Until then, short packets to gearhead@gibbs.com.

Cool Tools

A roundup of the latest neat stuff
Compiled by
Keith Shaw

Pocket PC parade

Microsoft used Oct. 4 as launch day for its new Pocket PC 2002 OS, and along with the launch of the operating system came a slew of new device and partner announcements.

In addition to new devices from Casio, Compaq (H3800 and 3700 models pictured), Hewlett-Packard, Toshiba and others, Microsoft announced that Acer, Audiovox, ETEN, Fujitsu, Inventec, Itautec, NEC USA and O2 (formerly BT Cellnet) will be using the operating system to make their own Pocket PCs soon.

Go to www.microsoft.com/presspass/events/pocketpc2002/material.asp for a list of announcements and hardware specifications, and www.microsoft.com/presspass/events/pocketpc2002/partner.asp for a list of partner announcements made at the event.



Compaq's new PDAs are based on Microsoft's PocketPC 2002 OS.

New Jornada accessories

HP announced several new accessories to go along with the Jornada 560 series of Pocket PCs, including:

- A PC card adapter that lets you plug a PC card and a MultiMediaCard (MMC) or Secure Digital (SD) card into the CompactFlash slot. The adapter would let you use a wireless LAN PC card and SD storage card at the same time. The adapter is expected to be available in December and will cost around \$150.
- A pocket keyboard that replaces the existing cover of the Jornada 560 with a cover that has a mini-thumb keyboard. The keyboard is also expected in December and will cost around \$50. For users who want a full-sized keyboard, the Targus Stowaway Portable Keyboard works with the Jornada 560 and costs about \$100.
- A battery that fits into the Compact Flash card slot and includes its own MMC/SD slot. With this adapter, you can get extra battery life, as well as the benefits of an MMC or SD card

for extra storage or memory. The battery is expected in December and will cost about \$80.

- The HP Pocket Camera, which is available for around \$170, will work with the Jornada 560.

More information on

the Jornada can be found at www.hp.com/jornada.

New FireWire drives

FireWireDirect.com has announced the third version of its portable FireWire Drive, the Spark II Pro. The Spark II Pro is a 2.5-inch hard drive that combines FireWire with Universal Serial Bus, and it is now compliant with the new USB 2.0 specification. The drive is also backward-compatible with USB 1.1, so the drive will work with computers that don't have the USB 2.0 standard.

The Spark II Pro Combo Drive will ship in 10G-, 20G- and 30G-byte configurations, and includes both USB and FireWire cables. Prices range from \$220 for the 10G-byte drive, up to \$390 for the 30G-byte model. All are for sale now at www.firewiredirect.com.

Intermec expands rugged handheld

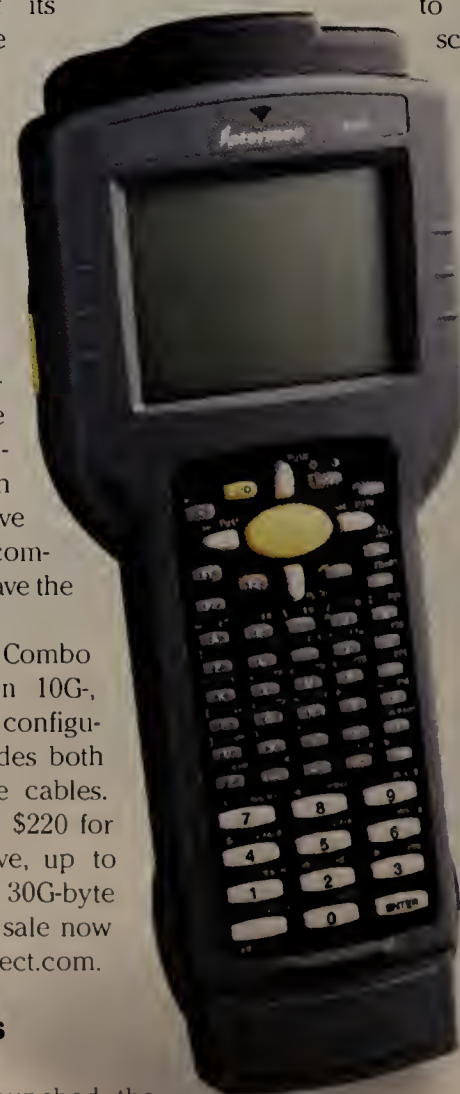
Intermec has launched the

2435 model, an expansion of its 2400 series rugged handheld data-collection terminal. The 2435 includes a new ergonomic design, a high-contrast, 31-character LCD screen that makes long part numbers easy to read. The 160-by-128-pixel screen displays 50% more characters than the 2400 series terminals. Keypad buttons are larger, and the device has a scratch-resistant display, internal antenna and a polymer case able to withstand drops on a concrete floor. The 2435 runs on a lithium-ion battery that provides more than eight hours of continuous use, according to Intermec. Wireless LAN features include integrated 802.11b and optional 2.4-GHz Open-Air radios.

The handheld is shipping now. The base price is \$2,100, which includes an 802.11b radio. A fully configured device with integrated scanner and terminal emulation costs \$3,315. For more information, head to www.intermec.com.

Got a cool product? Send news to kshaw@nw.com.

Intermec's rugged 2435 model handheld.





NETWORK SUPERVISION™



Our new OptiView™ Integrated Network Analyzer makes all the others look like dinosaurs. Bravado? Perhaps. But totally true. It not only captures packets and tests hardware, it also integrates all the vision tools you need for seeing all seven layers. All onto the same screen. In one snazzy-looking handheld box. And OptiView's big, color, touch-sensitive intuitive screen makes using it about as easy as pointing your finger. RMON2 capable? Gigabit Ethernet troubleshooting? Remote operation via the web? Yes, yes and yes. To see the future on your network, call us at 1-800-717-2102. Meanwhile, see OptiView in action at www.flukenetworks.com/optiview. You won't believe your eyes.

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EDITORIAL

John Dix

A little help in hard times

The *Wall Street Journal* reported recently that the terrorist attacks will cost the U.S. "at least" \$100 billion. That includes everything from the cost of lost physical assets to lost business, increased expenditures on defense and the cost of rebuilding.

With the economy already on the ropes, it is clear the financial burden of the attacks has staggered businesses across the board. And who knows what the long-term ripple effects will be, where the bottom is and when things will rebound.

Given the uncertainty, the message for IT management and IT spending is proceed with caution. For some of you the word might be more dire: duck and cover.

MORE WITH LESS

Budget stretching strategies

Online: www.nwfusion.com
DocFinder: 6433

But one of the beauties about technology is flexibility. Unlike specialty manufacturing tools designed to accomplish one task, many of our tools can be stretched, extended

and redeployed in new capacities. Hardship is the mother of creativity, and if your business is severely hampered by the whipsaw effects of the current situation, now is the time to start thinking anew about how to make what you have work harder, longer or differently.

It is also time to reexamine what you do and how. Is it time to outsource a few tasks? Can you squeeze more out of your telecom suppliers? Should you change the way you negotiate contracts?

To help, *Network World* launches with this issue a semi-regularly appearing series called "More With Less: Budget stretching strategies." The stories will run the gamut, from odd technologies that might help you in a pinch, to free tools that are worth their weight in gold.

In this issue see "Deep discounts: Cisco and other vendors are offering up big savings on network equipment — if you know how to ask" (page 57), and Mark Gibbs' Gearhead column, "X10: A low-tech power line net with high-tech uses" (page 44).

We have built a companion Web page where "More With Less" stories will collect (www.nwfusion.com, DocFinder: 6433), and have already populated it with stories that address the issue, including "The price is right: 10 free management tools" (www.nwfusion.com, DocFinder: 6430) and "Getting a better deal: Tips for holding your own at the negotiating table" (www.nwfusion.com, DocFinder: 6431).

If you have discovered a way to make do in hard times, share it in the More With Less forum, or by sending it to me.

— John Dix
Editor in chief
jdix@nw.com

opinions!

The spam police

Regarding your feature story "The spam police" (www.nwfusion.com, DocFinder: 6337):

As a network consultant, I'm called in to solve network problems for my customers. Several times, my customers' networks have been blacklisted by the Mail Abuse Prevention System (MAPS). Every time, we were able to resolve the problem quickly and courteously with the MAPS personnel. I find it difficult to believe that so many people have had such different experiences with MAPS.

Each network owner makes a decision whether to subscribe to the various MAPS blacklists. MAPS has such enormous power over spammers because the subscribers give them that power.

Michael Atkinson
Network engineer/project manager
RMS Business Systems
Buffalo Grove, Ill.

As an interested third party, I have been tracking the evolution of many of the events discussed in the Usenet news.admin.net-abuse.e-mail group and the SPAM-L mailing list. I found the story "The spam police" to be riddled with inaccurate statements. Some of these:

- "...[S]omeone complained to the antispam group Mail Abuse Prevention System (MAPS) that one of iBill's thousands of customers had spammed them." The fact is, hundreds of people complained to iBill and MAPS that quite a few of iBill's customers were spamming them, often with iBill links directly in the spam.

- "We didn't know what was going on," says Marty Essenburg, iBill's CIO at the time. ... "Not true. Ed Cherry from iBill was participating in the discussions for weeks leading up to the MAPS listing."

E-mail letters to jdix@nw.com or send them to John Dix, editor in chief, *Network World*, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

They were only listed after MAPS contacted them repeatedly, and iBill not only refused to terminate its spamming of customers but threatened to sue anyone who complained about them.

- "There's no appeals process once you're blacklisted," [says Ron May, MIS manager for Sears Carpet.com]. Wrong. See <http://mail-abuse.org/rbl/removal.html> for details.

Darren Gasser
Ventura, Calif.

"The spam police" seemed to take great pains not to place blame where it truly belongs: with American business and the federal government. As long as there is a buck to be made, American business will continue to stoop to new lows. Spammers will continue to operate as long as there is economic incentive. We receive tons of junk snail-mail because the U.S. Postal Service subsidizes and encourages junk mail. Look closely; the cost to handle a piece of junk mail is not very different from first-class mail.

Spam is even cheaper and less regulated. If the federal government were to pass and enforce severe penalties on spammers, spam would become unprofitable. This will not happen under the current political conditions.

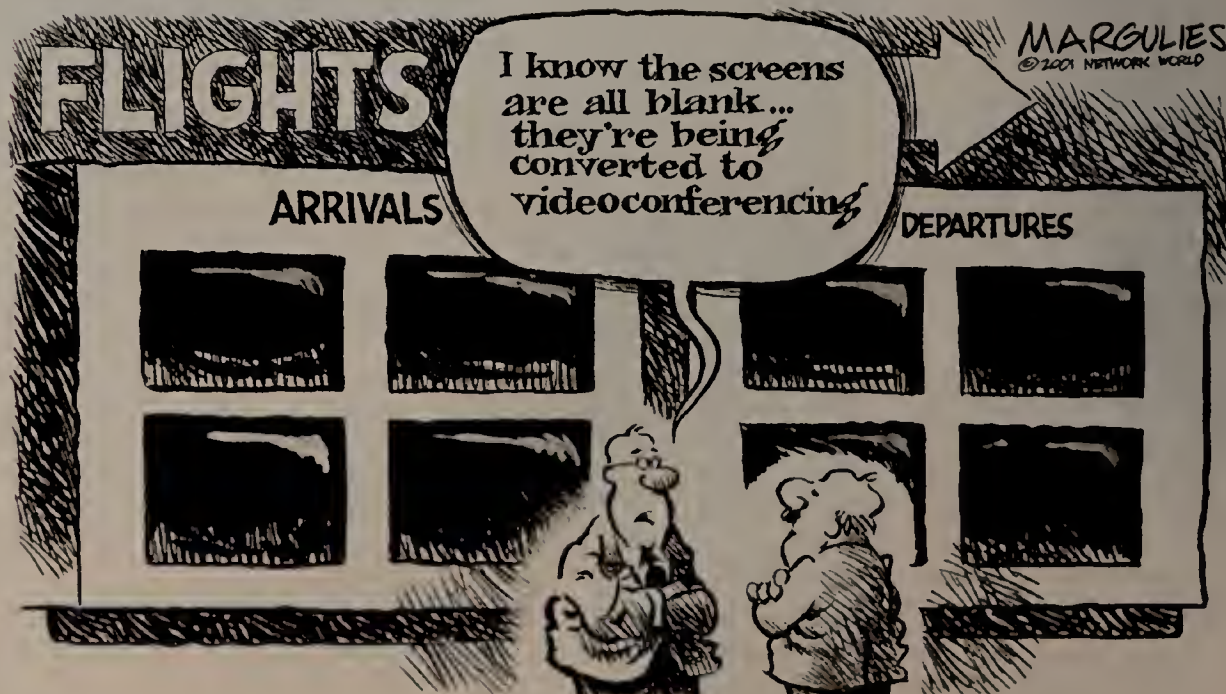
Spammers are uncontrolled and out of control. You allude to that in the story. In the absence of formal methods of enforcement, private citizens must find their own ways. The more force a spammer uses, the stronger the response required.

I have been spammed by one company since last December and another for the last four months. They move from ISP to ISP. I like to think that my complaints have forced them to do this. However, it has not stopped them. I will probably submit them to MAPS. That way, they may find the next ISP is already using MAPS and is ready for them.

David Easter
Fallston, Md.



More online! www.nwfusion.com Find out what readers are saying about these and other topics. DocFinder: 6422





IN THE WORKS

Paul Hoffman

Don't be lulled by firewalls

The recent Nimda virus caused untold damage to companies throughout the world. IT administrators spent days disinfecting and patching infected systems, as well as belatedly applying current security patches to systems running Microsoft's Internet Information Server software. Nimda did an incredibly thorough job of finding systems running IIS, even if those systems weren't really Web servers.

One lesson this episode taught us is to keep security patches up to date — even if your system is behind a firewall. The tens of thousands of systems that were compromised by Nimda were hit because their administrators had incorrectly assumed that, because the systems were behind a firewall, they didn't have to be as vigilant about security.

Nimda propagated in many ways, but one of its primary starting places was e-mail that contained a Trojan horse file. Everyone in IT has tried valiantly to convince users not to run programs of unknown origin, and everyone in IT knows that such requests often fall on deaf ears. There was no reason for any user to run the Nimda Trojan horse, but they did, and the program immediately searched for (and often found) unprotected systems running IIS. As many people discovered, IIS runs by default on many systems that are not being used as traditional Web servers.

The name "firewall" is an overstatement. Firewalls are really content filters, not walls. Many attacks can be stopped by well-administered

firewalls, but as Nimda and others have shown, well-planned attacks can get around firewalls very easily. Face it: Dangerous e-mail (and often dangerous Web content) gets through firewalls. If you don't keep every system behind your firewall as secure as those systems outside your firewall, you are opening yourself up to attacks started by unwitting users.

The Nimda attack had an unintended consequence that should reinforce the need for securing everything, even systems behind a firewall. Systems running IIS were not the only ones affected; some products with interfaces that use the HTTP port stopped working when probed by Nimda. Many devices such as print servers and VPNs have Web-based administrative interfaces. Some of these simply froze when barged with the probes from Nimda-infected systems.

There are many reasons not to trust firewalls to the point where you don't fortify all the hosts on your network. First and foremost, good attackers know that firewalls are common, so they come up with methods to get through the firewall. Second, many attacks are meant to be short-lived, so updating a firewall's policy might stop a new attack but only after many hours. As Nimda showed, this is probably enough time to do a lot of damage. Third, it is not safe to assume that the firewall administrator fully understands the interface of the firewall product you use or that the interface completely matches the firewall's policy.

Hoffman is director of the Internet Mail Consortium and the VPN Consortium. He can be reached at phoffman@imc.org.

The name 'fire-wall' is an overstatement. Firewalls are really content filters, not walls.



INDUSTRY COMMENTARY

Frank Dzubeck

Corporate America's wake-up call

The attack at the World Trade Center will go down in American IT and communications history for many reasons. From a physical perspective, the estimated replacement cost for equipment such as PCs, servers, LANs, PBXs and routers will be more than \$5.3 billion. The loss to service providers of

central office switches, control points, cross connects and other collocated equipment is estimated to be more than \$1.5 billion. These numbers are insignificant compared to the loss of human life but set a perspective for the magnitude of the recovery effort required to restore companies to normal business operations.

The news about disaster recovery breaks down into three categories: the good, the bad and the ugly. The "good" news is IT disaster-recovery plans were in place, due to the 1993 World Trade Center bombing and preparation for Y2K. Companies that were prepared fared well. Data networking has come a long way since the days of SNA. Today, logical addressing and internetworking allow the redirection of damaged or nonexistent physical information paths to new locations without construction delays.

This was the first instance of the innovative use of voice over IP, cable-Internet access and fixed-wireless access as disaster-backup technologies to replace lost service via circuit and cellular wireless technology. Although limited, the use of voice over IP, using IP telephones and gateways, through the Internet or a private IP network using cable or fixed-wireless access worked well enough to make a case for including the technology in all future communications disaster-recovery strategies.

The best news was perhaps the most expected — communications disaster recovery came through. Carrier response was immediate, coordinated and massive. Transportable temporary infrastructure, based in vans, was brought in to ease capacity and support the demand for "normal" customer operations. Verizon moved thousands of local access circuits and even rerouted 24 OC-48 fiber-optic circuits to bring customers back into service during the week.

The "bad" news is not all applications came up smoothly, particularly e-mail and voice mail. These simple yet important applications

were not part of most recovery planning. Mailboxes, user lists, address books, directories, filters and distribution lists were not normally saved and backed up on a regular basis — an oversight that won't happen again.

Another major issue was service provider network and content provider capacity. Whether a cellular provider, regional Bell operating company or interexchange carrier, all voice networks experienced capacity demands unseen in their history. Verizon's wireline network and local wireless provider networks all experienced twice the normal, daily call rate — a capacity engineering problem sure to be addressed by all service providers in the near future.

The Internet did fare better with respect to communications resiliency that allowed access but dramatically exposed its weak underbelly — Web performance. Slow response time plagued and exasperated user demand for information. The situation would have been even worse without the widespread use of content delivery network technology. It is time for the industry to implement demand-based rather than fixed server capacity provisioning.

The "ugly" news was that not all firms, especially small businesses, had disaster-recovery plans in place, nor did they have off-site backup. No matter the size of the firm, multistage (local, secure, off-site and archival) backup is mandatory today.

Another issue is our continued dependency on paper documents. The most complained-of problem was the loss of critical information on paper. Our dependency on paper has suddenly become our most critical form of corporate vulnerability.

If this was an attack on American corporate institutions and their infrastructure, it failed miserably. What it did do is sound a wake-up call to corporate America, highlighting the need for security, computer and communications disaster planning, and investigation of technologies such as self-healing optical networks, fixed-wireless access, high-speed cable data access, backup using IP VPNs and voice over IP.

Dzubeck is president of Communications Network Architects, an industry analysis firm in Washington, D.C. He can be reached at fdzubeck@commnetarch.com.

The 'good' news is IT disaster-recovery plans were in place, due to the 1993 World Trade Center bombing and preparation for Y2K.

VoIP variables

There are three types of vendors to consider — traditional voice and data companies or flashy VoIP start-ups. Early adopters share their insight into choosing the right equipment.

■ BY SUSAN BREIDENBACH

IT

consultancy Avanade works closely with leading network hardware vendors that sell voice-over-IP products. But when it came to choosing convergence gear for the firm's own network, Avanade went with hybrid voice switches from start-up Shoreline Communications.

Shoreline's product stood out because it can function as an inexpensive PBX and voice mail system while allowing gradual migration to voice over IP. Avanade has installed the Shoreline gear in its Seattle, New York and San Francisco offices, and the remainder of the company's 17-site global network and 1,200 employees are being migrated to it.

"Shoreline has modules that let you start [voice-over-IP] rollouts with as few as 12 people," says CIO Sean Jazayeri in Avanade's Seattle office. "It also works with any kind of handset — analog, digital or IP. By using cheap analog phones, we can save \$200 per handset."



Avanade CIO Sean Jazayeri is migrating his firm's 1,200 employees to Shoreline Communications' voice-over-IP systems.

PHOTO BY KATHLEEN KING

Most analysts still recommend that companies hold off on voice-over-IP deployments until the technology matures a bit more, but if you're considering a bold move to convergence, you'll need to decide whether to stick with established voice vendors such as Nortel, Lucent and Ericsson, data vendors such as Cisco and 3Com or start-ups such as Shoreline and Vertical Networks.

"Between the data and voice players, the playing field is pretty level," says Kathryn Korostoff, an analyst with Sage Research. "The advantage the data companies have is counterbalanced by the voice expertise of the PBX vendors."

To help you determine which type of

voice-over-IP product best meets your needs, *Network World* canvassed more than a dozen early voice-over-IP adopters about their experiences.

The most important factors in their decisions came down to scalability, price, ease of use and voice features.

Start with scalability

The first step is to consider the size and concentration of your user population.

"Sites with sub-50 and sub-500 and 500-plus users represent different categories with different solutions," says Chris Kozup, senior research analyst for Meta Group. "Will the vendor's products let you do a stand-alone branch-office installation today that can ultimately be part of an

enterprisewide converged network?" It also matters whether your company has one or a few large sites, or is scattered across lots of small offices with no on-site IT staff. And make sure both you and the vendor define scalability the same way.

NCP Solutions in Birmingham, Ala., needed to upgrade its central PBX — a 15-year-old Mitel museum piece — and decided convergence might reduce administrative costs. NCP, which provides billing services to the financial industry, considered Nortel, Cisco and 3Com before selecting Avaya as its vendor. However, when it came to selecting a specific product, NCP rejected Avaya's pure IP PBX in favor of the vendor's IP-enabled Definity G3SI because it could accommodate more modem lines.

"We would have had to link two IP PBXs together to get enough ports," says Ed Watson, NCP's director of infrastructure services.

To companies in a more distributed environment, scalability may have nothing to do with how many phone lines a single chassis will support. Vendors such as 3Com, Shoreline and Vertical Networks argue that their office-in-a-box solutions are unfairly pigeonholed as easy-to-use platforms aimed at small businesses.

As Avanade's Jazayeri points out, these products let companies start small, with a limited upfront investment, and grow from there. They can also be rolled out across the network of a large company that has many small locations.

For example, Household International got into convergence as part of an effort to upgrade data bandwidth to 1,500 small branch offices. The financial services firm was looking for a voice-over-IP system that could route calls to individuals in a particular skills group, regardless of their location, and automatically bring up the caller's account information. "We wanted to bring some call-center efficiencies down into our five- to 10-person branch operations," says John Armstrong, managing director of network systems in Bridgewater, N.J.

After evaluating products in a lab, IT narrowed the field to Cisco and Vertical Networks and proceeded with pilot installations in five branch offices early this year. Vertical won. "The Cisco solution changed the workflow in the branches, while the Vertical system required virtually no training," Armstrong says.

Household has replaced the six plain old telephone service lines in each branch office with an IP connection, and the dedicated service lets the company get better switch-to-switch calling rates. Armstrong says the Vertical rollout paid for itself without even taking the productivity gains into account.

Focus on the bottom line

Saving on capital investment and opera-

tional costs is one of the primary drivers of convergence, but the relative efficiencies different products can offer depend partly on your existing infrastructure.

Harrisburg International Airport in Middletown, Pa., had a 3Com data network when a major rebuilding project raised the convergence issue two years ago. Among other things, voice over IP would make all the pending moves during the three-year construction project much easier to manage. IT Manager Mark Berkheimer spent about a year looking at standard phone systems and was getting prices of around \$120,000. He estimated that Cisco's voice-over-IP technology would be a little less expensive, but still more than \$100,000.

Instead, the airport spent about \$60,000 on a 3Com NBX network, and Berkheimer reckons there are a lot of ongoing savings as well. "The 3Com system was much easier to learn, and we could install it ourselves," he says. "With Cisco, we needed a Cisco-certified network engineer for installation, plus a lot of training." The 3Com NBX system went live last November, and now handles the 4,000 inbound and outbound calls the airport receives and makes each day.

However, other organizations make a similar evaluation and find that Cisco offers the best deal. The University of Arkansas at Pine Bluff wasn't even a Cisco shop when it headed down the convergence path a few years ago. The school's network was based on old Digital Equipment hubs and Centrex service when a \$3 million infrastructure upgrade began.

Initially, the university planned to buy a Lucent PBX, until IT Director Maurice Ficklin heard a Cisco voice-over-IP presentation at a Dallas conference. He came home with five IP phones and a Celsius call manager.

"We played around with them, and they worked fine," Ficklin says. "Then I started calculating [return on investment], and realized we could just take the \$500,000 per year we were spending on Centrex and use it to purchase the voice-over-IP equipment."

The school also looked at platforms from Nortel, Lucent and 3Com, but Ficklin says none came close to the features and functions Cisco's voice-over-IP products offered. Today, the university has 2,000 IP phones deployed. Voice, data, video and security services are provisioned over a single Cisco network, with fiber connecting the buildings.

In other situations, the traditional PBX vendors may come out as the low-cost alternative, particularly for the cost-conscious education market. Center Area School District in Monaca, Pa., was rolling out a new computer network as part of a five-year technology plan, and wanted to put a phone in every classroom. An existing key system couldn't begin to accom-

modate 300 classrooms in three buildings spread across 5 miles and connected via the district's fiber metropolitan-area network. Other requirements included integration with in-building paging systems; video support; plus a voice mail system that would support separate homework hot lines for parents and students to call.

After evaluating Avaya, Siemens and Cisco gear, the organization chose Alcatel. "We considered track record, customer references and staying ability," says Christopher Rishack, the school district's technology coordinator. "Alcatel could deliver everything over the same cable, and give us a one-point resource for troubleshooting, training, and expansion."

While stability was important to Center Area School District, some firms are willing to increase risk in exchange for the flexibility of a start-up's new technology. Experio Solutions follows that way of thinking. Launched last year, the consultancy decided it would be cost effective to lease as much infrastructure as possible. "We considered IP Centrex, but the phone companies don't seem to be interested right now," says Mike Shisko, IT director.

Experio then chose Shoreline because of its cost, administration features and ability to support a highly distributed business. The firm has seen two of its application service providers go bankrupt, and has contingency plans for dealing with such start-up hazards.

Weighing ease-of-use issues

Voice-over-IP start-ups tend to get especially high marks for ease of use, offering turnkey systems that require little expertise to install and operate.

Mortgage Information Services in Cleveland was deploying a help desk and looking for a way to enable a new level of collaboration among its nine offices when a Shoreline pilot was begun in June 2000. "Our Lucent PBX wasn't that old, but we didn't have anyone with the skill set to make it do what we wanted," says Scott Crawford, the company's network administrator.

Today, Mortgage Information Services has eight of its nine offices migrated to the Shoreline system, and calls can be transferred across sites to ensure that a person answers them. Moves, adds and changes take minutes, and Crawford manages the entire network remotely from his home in Tampa. People can reach him from any office just by dialing his extension.

"Shoreline will be working with us on setting up a [customer relationship management] system," Crawford says. "Some of the larger companies might not be willing

to pay such personal attention to you."

Crown Services, a roofing company in San Jose, had even more need of simplicity when the issue of convergence came up two years ago. The firm has grown through acquisition and now has 15 sites throughout California. The roofing business isn't IT-intensive, and the acquisitions didn't bring much data-networking technology with them — just six different phone systems.

"We didn't have an internal telecom staff, or the resources for training or for outsourcing telephony," says Michael Dyer, the IT director. "But Vertical's Instant Office gave us remote management and diagnostics, and delivered everything in a single box that let us get new sites up very easily." Crown Services chose the start-up after considering Alcatel, Cisco, Lucent and Nortel.

Today, the roofing firm's 15 sites have a Vertical Networks Instant Office system that provides PBX functionality, voice mail and a data switch in a single box. Within each office, traditional phones are plugged into the Instant Office switch, but voice over IP is used to make interoffice calls.

Other voice-over-IP pioneers find that in-house expertise tips the scale in favor of a particular vendor.

"When you get into [quality-of-service] issues where you have to shape your traffic, I for one want to use equipment I'm familiar with," says Steve Meyers, IT director for the city of Bend, Ore. He had a Gigabit Ethernet backbone centered on a Cisco 4908 L3 switch and had some experience with traffic prioritization.

The city was embarking on a big building project last year and he wanted to move traffic from a Lucent PBX onto a single converged network to lower administration costs. The voice-over-IP access layer consists of Cisco Catalyst 3500 series switches that provide in-line power to IP phones, and the distribution layer is made up of Cisco 2600 and 3600 routers running a voice-over-IP-compatible version of IOS. "Cisco's dual-switch integration let us preserve our Definity switches and still do four-digit dialing among sites," Meyers says.

Similarly, the U.S. Marine Forces Reserve already had substantial Cisco expertise that could be leveraged when the decision was made to integrate voice over IP into the infrastructure supporting its 185 Reserve sites nationwide.

"By sticking with Cisco equipment, it is easier to configure the network and ensure quality of service," says Capt. Chris DiNofrio, internetworking systems officer for the Marine Forces Reserve in New Orleans. The voice-over-IP network includes single-line, four-line and six-line IP phones, which get in-line power from Cisco's 3524-XL-PWR switches. A cluster of Cisco 7835 Call Manager servers in the network core handle call processing, and each site has a 3640 router running a version of IOS that includes Survivable Remote-Site Telephony.

"As existing PBX or key systems fail, we replace them with [voice over IP], and we anticipate great reductions in future support costs," DiNofrio says.

Still other early voice-over-IP implementers find that PBX continuity makes for the easiest transition.

When Woods Hole Oceanographic Institute in Woods Hole, Mass., started looking at convergence last year, its PBX was a pre-Meridian Nortel SLIXT dating to 1988. In contrast, its Cisco data network had been recently revamped. However, Woods Hole decided to stick with Nortel for voice over IP.

"We have the old SLIXT and the new IP switch tied together," says Hartley Hoskins, director of network services. "And there is no such thing as a cutover, which is a huge ordeal in the traditional PBX world. We now move phones over to the IP system at our leisure."

Some education of staff and users may be necessary,

depending on your starting point, so keep training and support capabilities in mind when you evaluate vendors.

For example, Center Area School District's Rishack says Alcatel offered a superior training program. Instead of using full-time trainers, the vendor rotates in engineers from the field. "We got toll-free 24-7 technical support as part of the training deal, and there hasn't been any wait time," he reports.



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Checking off features and functions

Not surprisingly, the PBX vendors do the best job with regard to voice features. However, only a fraction of a PBX's features are actually put to use in a given company. You need to identify this subset and use it as a checklist when evaluating voice-over-IP systems. If your users have to sacrifice voice features they've been employing, it won't be well received. And pay particular attention to key applications and functions such as voice mail and direct extension dialing among sites. Here, too, the PBX vendors tend to have an edge.

With the great majority of business calls ending in voice mail these days, voice mail is a mission-critical application. NCP's Watson was surprised to learn how many of

the old voice mail system's messaging features employees had discovered and put to use. He went with Avaya partly because its robust voice mail platform can accommodate just about anything.

If you are an IT-intensive company that tends to customize products, you might want to map your in-house programming expertise to the various voice-over-IP alternatives.

Last fall, Datek Online was moving to a new facility and decided to build a converged Cisco network. The stockbroker looked at what Alcatel, Avaya and Nortel had to offer, but decided its voice-over-IP technology was "slapped onto the old PBX architecture," says Rolando Garcia, Datek Online's network architect in Jersey City, N.J. "We would have to depend on the PBX vendors for any new features, because their systems are all closed. But we have programmers in house who can write code for Cisco's systems, so we are in control of our own destiny."

Similarly, Experio felt an affinity with the Shoreline system because it is "very Microsoft-centric," Shisko says. "Microsoft technology is our core competency, and we can absorb support of Windows-based systems without adding resources."

No matter which type of voice-over-IP vendor you choose, you'll have to put off deployment if you plan to hold out for every feature you want. "Vendors are still in early stages, and all categories of products are lacking some desired options," Meta Group's Kozup says. "Evaluate vendors holistically and pick one that will ultimately meet your requirements."

Avanade slowed up its voice-over-IP migration temporarily while waiting for Shoreline to deliver on some promises. These included upgrading the operating system from NT 4 to Windows 2000, clustering the database technology to enable transparent failover, and releasing an international version.

Similarly, "Cisco didn't come out of the box meeting all our voice needs," says Rock Regan, IT director for the State of Connecticut, which began migrating to a Cisco-based voice-over-IP network last year. "There was a long list of things that would be developed over time."

Meanwhile, there is broad consensus that voice-over-IP implementations should not attempt to integrate best-of-breed components from multiple vendors. "We don't have broad interoperability yet," Kozup says.

Breidenbach is a freelance technology journalist and consultant. She can be reached at sbreidenbach@usa.net.

Of utmost importance

Sage Research recently surveyed network executives planning to evaluate voice-over-IP platforms and asked for the criteria being used. In order of importance, the top four factors were:

- Technology leadership.
- Customer service offerings.
- Availability of on-site customer support.
- Experience with the supplier.

Sage concludes that network executives are increasingly brand-sensitive, and less focused on the latest and greatest features.

"They are very worried about buying from a company that can't keep making necessary investments," says Sage analyst Kathryn Korostoff. "And the top vendors like Cisco, Nortel and Fujitsu really are the ones to watch now."

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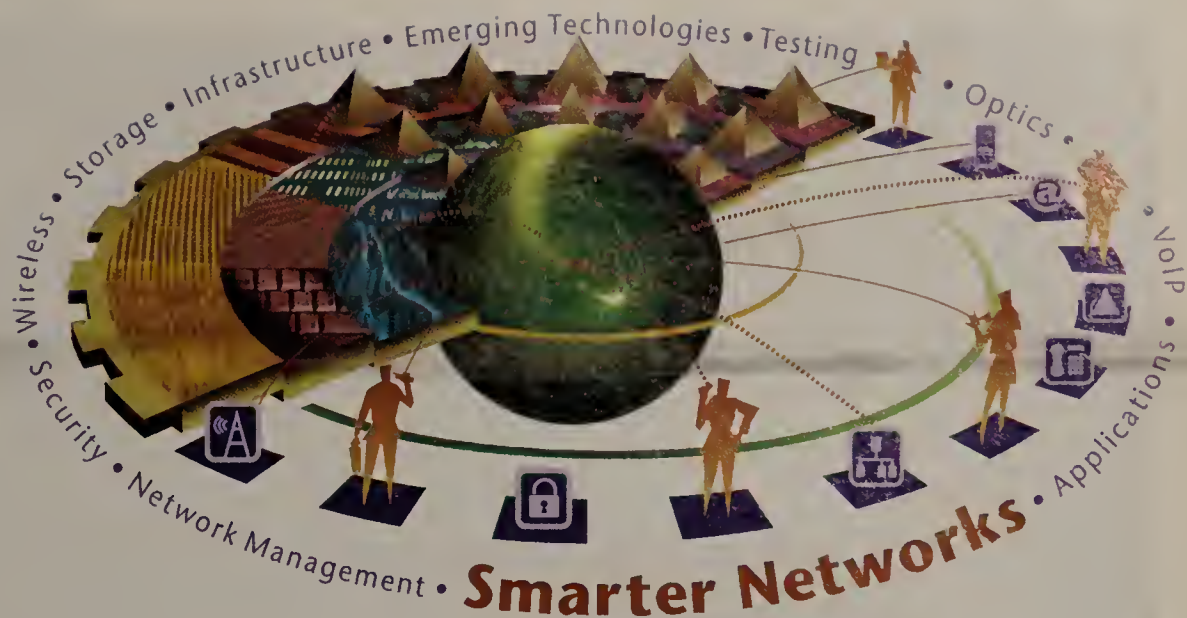
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E-mail content managers

Baltimore Technologies' MAILSweeper sweeps up e-mail messes.

■ BY TRAVIS BERKLEY, NETWORK WORLD GLOBAL TEST ALLIANCE

Be content with your content

E-mail is a business-critical application, but keeping tabs on it is a daunting task. How can you make sure unwanted things aren't getting in (such as viruses, spam or inappropriate material) and also make sure you aren't sending out the same or worse things — such as company secrets? If you have an e-mail usage policy in place, that's a start. The problem with an e-mail policy is that it operates on the honor system. The e-mail content managers that we tested help you enforce your e-mail policy, which can save your secrets, your reputation . . . perhaps even your company's bacon. We reviewed Baltimore Technologies' MAILSweeper for SMTP, Elron Software's Message Inspector, Gordano's NT Mail, Group Technologies SecuriQ Suite, Rockliffe Systems' MailSite DataCenter and SurfControl's SuperScout.

MAILSweeper, despite its complex installation process, won our Blue Ribbon Award because it does a bit more than the other contenders in every area we tested.

An examination of content

E-mail content managers examine and control the distribution of e-mail based on content. To test the products, we used three single keywords: poltergeist, alchemy and concerto. But it's not enough to recognize offensive text in isolation. An e-mail content manager needs to be aware of context. If you stop all e-mail with the word "breast" in it, you also risk losing valuable mail and could face embarrassment, as a large ISP discovered when it terminated the accounts of people in a breast cancer survivor's group. In our tests, we tried to allow messages about breast cancer to

go through, while stopping messages that just mentioned breasts.

Another key concern is the unauthorized release of critical-business information. Your staff telling people about an impending stock split could be seen as spreading insider information, so we set our rules to stop messages that mention stock splits. We also used this as an opportunity to test how well the e-mail content managers could recognize more complex phrases, such as "our stock is about to split" and "the split in our company's stock." Both of these should be caught. However, another test mentioned the word "stock" in the first line of a three-page note, and concluded with, "I gotta split." This note should be passed on to the recipient.

MAILSweeper had more of a learning curve than the other products. Once we created a reference (essentially, a dictionary) that contained the words, strings and regular expressions we were interested in, MAILSweeper quickly found all of our test words. Using the regular expressions and taking into account the proximity of two

Net Results



4.03 RATING

MAILSweeper for SMTP 4.2

Company: Baltimore Technologies, (877) 228-9754, www.baltimore.com **Price:** \$8,664 for 500 users. **Pros:** Contextual scans; flexible attachment-scanning options. **Cons:** Slight learning curve.

3.9 RATING

SuperScout 3.0

Company: SurfControl, (800) 368-3366, www.surfcontrol.com **Price:** \$1,800 for 50 users, bulk discounts available. **Pros:** Flexible; the Risk Filter. **Cons:** Doesn't scan content in context.

3.88 RATING

Message Inspector 3.1

Company: Elron Software, (800) 767-6683 **Price:** \$18,900 for 1,000 users (with companion McAfee antivirus bundle and one-year subscription). **Pros:** Contextual scans; Java-based console. **Cons:** Limited attachment-scanning options.

3.5 RATING

NT Mail 6.04

Company: Gordano, (877) 292-1142, www.gordano.com **Price:** \$38,482 for 10,000 users, including one-year Virus-protection plan subscription. **Pros:** Easy to use and set up; powerful scripting language. **Cons:** Cannot scan archives; limited reporting.

3.4 RATING

SecuriQ Suite 1.1

Company: Group Technologies, (877) 476-8755, www.group-technologies.com **Price:** \$10,000 for 250 users for the entire suite (modules can be purchased separately). **Pros:** Create your own file "finger-prints"; tight Exchange integration. **Cons:** Weak reporting, just needs a little overall polish.

3.08 RATING

MailSite Datacenter 4.5

Company: Rockliffe Systems, (408) 554-0766, www.rockliffe.com **Price:** \$4,000 for 50,000 users. **Pros:** Very flexible as far as adding custom modules. **Cons:** Very little included out of the box.

What's the score?

	MAILSweeper	SuperScout	Message Inspector	NT Mail	SecuriQ Suite	MailSite Datacenter
Functionality 40%	4.5	4	4	3.5	3.5	2
Flexibility 25%	4	3.5	3.5	3	3.5	4
Ease of use 25%	3.5	4	4	3.5	3	3.5
Installation 5%	3	4	4	4	4	4
Documentation 5%	4	4.5	4	4.5	3.5	4
TOTAL SCORE	4.03	3.90	3.88	3.50	3.40	3.08

Individual category scores are based on a scale of 1 to 5. **Percentages** are the weight given each category in determining the total score. ■ **Scoring key:** 5: Exceptional showing in this category. Defines the standard of excellence. 4: Very good showing. Although there may be room for improvement, this product was much better than the average. 3: Average showing in this category. Product was neither especially good nor exceptionally bad. 2: Below average. Lacked some features or lower performance than other products or than expected. 1: Consistently subpar, or lacking features being reviewed.

words, it was easy to create a single rule for our tricky breast cancer test, and another one using the MAILSweeper "near" function to accommodate the stock-split test.

Elron's Message Inspector's text-analysis tools found all of our test words. It also handled our combinations well. Message Inspector's "collocation" option can help find words in a context. This was particularly handy for our stock-split test. Both test phrases triggered the rule, and by adjusting the collocation value, we kept the rule from triggering when the words were in separate paragraphs.

Elron's Message Inspector, Gordano's NT Mail, Rockliffe's MailSite DataCenter and SurfControl's SuperScout required us to create two rules to handle the breast test. One rule passed messages containing both "breast" and "cancer," while the next stopped those containing only "breast". This was a bit more cumbersome than creating a single condition to handle our test, but it did work. We wonder how many similar word combinations a system manager will have to create special rules for. While we could test for stock splits, without a near or collocation test it was easy to have false positives.

Playing footsie

For cynics who think lawyers and judges run companies, footers — the disclaimers of the e-mail world — may be all the proof

they need.

MailSite didn't directly offer a way to add footers to messages. However, MailSite offers customizable agents that run within MailSite, and it would be possible to write an agent that would handle this function. Still, this is a function that is easier to buy than write. All of the other products offer ways to add footers based on the sender, recipient, the sender or recipient's domain, or other identifying characteristics. Not all products offer all the options, but all offer a way to get there.

MAILSweeper goes a step further and divides footers into two functions, a "legal" disclaimer and a "commercial" disclaimer. A legal disclaimer adds text at the front or end of a message body. The commercial disclaimer combines a text-analysis function into it to decide if the disclaimer needs to be added. For example, if it sees the words "sales quote," it might add a disclaimer reminding folks "this quote is good for five business days only." There are options to provide exclusions (either by name or domain) and to prevent multiple disclaimers, for example during multiple, quoted responses.

Out with the bad mail

All the products can stop bad mail and send a message to the sender, as well as the e-mail administrator. Some products add extra features, such as Message Inspector's

ability to stop or delay messages based on their size or sender. This would allow the sales department, for example, to send marketing information at any time. SuperScout lets you put into isolation mail that violates standards so the system manager can determine what actions should be taken with the mail. In addition to sending e-mails to the sender and system manager, MAILSweeper can create a pop-up alert with a customizable message, such as "I found a virus!" and send information to the application event log. Group Technologies' SecurIQ lets you create rules at many levels within the Microsoft Exchange system, from systemwide in the public folders down to folders within a user's mailbox.

We found SurfControl's SuperScout unique Risk Filter to be the easiest way to filter messages. It can be added to almost any rule. Because most jokes and pictures are sent through e-mail relatively unchanged, SuperScout adds to the Risk Filter the characteristics of these messages to make them easy to spot. For example, you can turn on the Risk Filter for adult-content images without having to scan all JPG, GIF or other formats. However, the Risk Filter probably won't find any content that the people in your company created. The Risk Filter is updated automatically if you have a subscription, much like anti-virus programs.

If there is anything e-mail users agree on, it's that spam is bad. All the packages offer ways of handling spam, including use of the Realtime Blackhole List, allowing system managers to create lists of domains and sites from whom e-mail will not be accepted. They also have ways of testing message characteristics such as the number of recipients to a message, ensuring through a reverse DNS lookup that the sending machine exists, and disabling relaying to prevent others from using your machines to deliver spam.

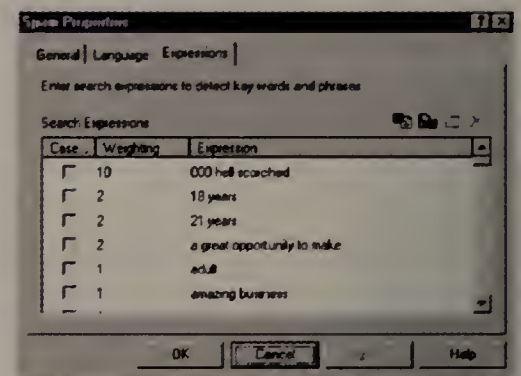
MailSite had the most to offer in this arena.

Configuration and managing

Most of the packages we looked at sit between the e-mail server and the rest of the world. However, Gordano's NT Mail and Rockliffe's MailSite DataCenter are not only an e-mail content filters, but also complete messaging systems.

If you are moving your e-mail services in-house, or if you want to escape the e-mail server you have, these products can perform all your e-mail services. NT Mail can also be used to protect another system if you configure it to scan messages, and then forward the ones that pass the tests on to the protected system. MailSite also contains a list server, and specific agents can be created for any lists you may have.

Consoles come in a variety of styles, ranging from



MAILSweeper let us easily select and weight the words that help us decide whether a piece of mail is spam or valid mail.

Windows-based programs, Microsoft's Management Console-based consoles, Web applications and Java applet-based consoles. Gordano's NT Mail, Rockliffe's MailSite DataCenter, Elron's Message Inspector offer full control from a Web interface which can be used from any Internet connection. SurfControl's SuperScout is partly there, offering Web-based control over its Message Administrator, which lets a remote system manager control the disposition of quarantined messages.

Logging and reports are an integral part of management — they let the system manager know what has happened to the system, and they help justify the software to management. NT Mail generates logs as it processes mail. Each night when the log files are rolled over, they can be sent to any e-mail address for review, or they can be compressed and/or archived. MailSite can log to a set of log files, the NT application log, and export data so the Windows Performance Monitor can access it.

MailSite, SuperScout and MAILSweeper can send log data to an access or other Open Database Connectivity database, which gives the system administrator access to the report-generation tools the database offers. While MailSite and SuperScout don't include reports to run against the database, MAILSweeper includes several predefined reports such as policy usage, top author, top recipient and some performance metrics.

SecurIQ's reporting is similar to what Exchange offers, making the Event Viewer your source of information. Gordano's NT Mail only includes the basics. Neither graphs nor statistics are available with SecurIQ or NT Mail.

Message Inspector maintains its own database. Defined graphs and reports list the volume of messages processed, as well as most active rules triggered, users delivered to or from, as well as most violations by a user. A nightly report is sent to the administrator giving a summary, in text or HTML, of the previous days events. This report lists total messages processed, total messages blocked, total rules triggered and other statistics. If one of the reports or graphs

How we did it

We installed each of our products on a Compaq ProLiant DL380 equipped with twin 1-GHz Pentium-III processors, 512M bytes of RAM and an integrated Smart Array controller with an 18G-byte RAID-5 array. The operating system used was Windows 2000 Advanced Server with Service Pack 2 installed. We also installed Exchange 2000 where appropriate to the product.

We ran a bevy of tests to see how well our content was tracked. To check out attachment management, we used three types of files: JPG, MP3 and PDF. They were sent first using a real file name and extension, and then sent again with bogus names. The files were later archived using WinZip 8.0. Another test was zipping that file a second time, thus creating a recursive archive.

Text analysis was run using simple and complex phrases. First, we used three single-word keywords, and defined them in our dictionaries where the product permitted. For more complex testing, we tried various two-word tests. The first was to detect the phrase "propeller head," either as a literal string or detection of both words. Both words had to be found in that order. Our next test was to find mention of a "stock split." The goal was to test contextual analysis to catch all phrases, such as "our stock split happened," "our stock is going to split" and even "the split will happen with our stock."

The final test was another context analysis exercise, but proved to be the most difficult. We wanted to catch all mail that contained the word "breast," unless it was talking about "breast cancer." So, not only were we looking for two words in a context, but also finding both words resulted in a "pass" condition, and finding only one resulted in a "block" condition.

We graded each product on how well it integrated with antivirus packages. Also, we looked for included mechanisms to limit spam and control relaying.

Footers and disclaimers were created based upon destination address or keyword content. First, we tried to create a rule to add a disclaimer if mail was sent to a specific domain. Our next test used a different disclaimer if a keyword was used in the message body.

Each product was looked at for how well you could group logical units of users (such as departments and managers).

Finally, we looked at what kind of reporting options were available and how easy they were to set up. We tried to send out daily status reports and any charts or graphs. Reports and graphs that told of worst offenders or top rules triggered were also on our hit list. Performance metrics was the gravy.



More online!

- The spam police: Tactics used by self-appointed spam fighters come under fire.
- Message management: E-mail performance monitoring tools help head off potential problems with Exchange or Notes servers.
- Spam: Tutorials, primers and reference material selected by Fusion editors.

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is tagged as a "favorite," it can be run and e-mailed with this report.

Attachments and antivirus

The really dangerous and time-wasting things that go in — and out — of our mail systems are in the attachments. Beyond viruses, the unauthorized spread of multimedia files wastes bandwidth, and exposes corporations to copyright suits when employees mail "ripped" MP3 files. We wanted to see if the products can recognize files and file types, even when their names or file types have been changed, and stop any viruses in the attachments.

MAILSweeper found our test files, and wasn't fooled when we renamed them. It can handle file types by extension, and it can also block other files by scanning the files for content. It handled archives, even nested archives, with aplomb.

NT Mail scans for file attachments, but only by file name and extension. To scan for files independently of their name, you need to create a script that scans the files for a unique identifying string. Each of our test files had such an identifier, so we added that functionality. Until that is added, a user can bypass the NT Mail system by renaming the file they want to send. Worse, NT Mail doesn't look inside of archive files (such as ZIP, ARJ, and LHZ) and scan their contents.

SecurIQ's Watchdog component looks for file attachments and it can analyze attachments by file name and a "fingerprint" of the file type. Watchdog easily caught our files by extension. However, when we renamed them, it caught JPG and PDF files, but missed MP3 files, despite having a fingerprint defined. Watchdog let us use the SecurIQ Configuration Manager to define new fingerprints for any new type of file. Checking for files inside of archives is another matter entirely. While SecurIQ supports three archive utilities — ARJ, InfoZip and WinZip — you must purchase them separately.

Right out of the box, SuperScout and Message Inspector handled archives, even nested archives, very well. SuperScout was adept at finding our test files. Not only could we scan specifically for file names and extensions, but also various types of files, independent of the name. The system manager can not modify the data file that contains definitions for these file types, although SurfControl lets you submit data to them so that they can add desired file types to the list. SuperScout let us specify file names and extensions to look for.

Message Inspector can scan for attachments by file name and/or extension, or by file type. As a result, it had no problems catching our test data files, even if we changed the name. Currently, Message Inspector groups the file types together, such as graphics files, multimedia files, executables and others. If you want to scan for a particular file type, but pass other similar types (such as catching .jpg files, but letting .gif files pass) you need to have some reliance on file extension, or simply catch all graphics files.

MailSite does little on its own with archives, but it lets you create your own

software to act as an agent to extend the product.

Once the attachments are found, they need to be checked for viruses. MAIL-Sweeper supports only three antivirus vendors: F-prot (Command Anti-Virus), McAfee (two versions) and Vet NT. There is no option for integration with other third-party antivirus products.

SecurIQ works with a variety of antivirus vendors, and can even launch scans for different products simultaneously if you want the feeling of protection that comes from using several antivirus products. While it cannot work with just any vendor, the eight that are included contain most of the major players.

NT Mail's Virus Protection Package uses

F-prot's Command Anti-Virus, automatically updating the virus definition files if your subscription is current.

SuperScout is preconfigured to recognize several commercial antivirus packages. It can also integrate with any other antivirus engines, but you will need to handle configuration manually.

Message Inspector provides a tightly inte-

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grated packaged solution from either McAfee or Sophos that essentially puts a new interface around the antivirus engine. This lets the system manager set policy regarding infected messages — it can attempt to clean messages and then send the cleaned message, or quarantine or block infected messages. Notification can also be sent to the sender, recipient and/or

an administrator.

Again, MailSite doesn't offer antivirus capability out of the box; however the system manager can create software agents that extend MailSite's functionality.

Installation

Message Inspector, NT Mail, SecurIQ, MailSite Datacenter and SuperScout installed

easily and quickly. Message Inspector had a nice touch that we really appreciated: Its installation process put policies in place to pass messages by default, so the mail would still be delivered while we learned how to use the product.

And then there's Baltimore Technologies' MAILSweeper — the most difficult product in our test to install. Not only is it sensitive to

what's in your registry, but it's also sensitive to which version of the MAPI32.DLL file is on your system. Microsoft supplies different versions of this file with many products, but you need the version that comes with Office XP. However, the version that comes with Outlook 98 (not Outlook 2000) is sufficient. Baltimore has you get the installation files directly from its Web site, and usually doesn't send installation disks. A word to the wise: Remember to download the installation guide. MAILSweeper does have a sample policy toolkit, but it is a separate piece to be installed later.

While SecurIQ's documentation seemed to be a work in progress with only one administrator guide available — the German version for Lotus Domino — the rest of the electronic documentation we received with the products was good across the board. SuperScout and Message Inspector excelled, and MailSite's documentation wasn't just thorough, it showed each screen we encountered during installation with details about each possible answer.

Conclusion

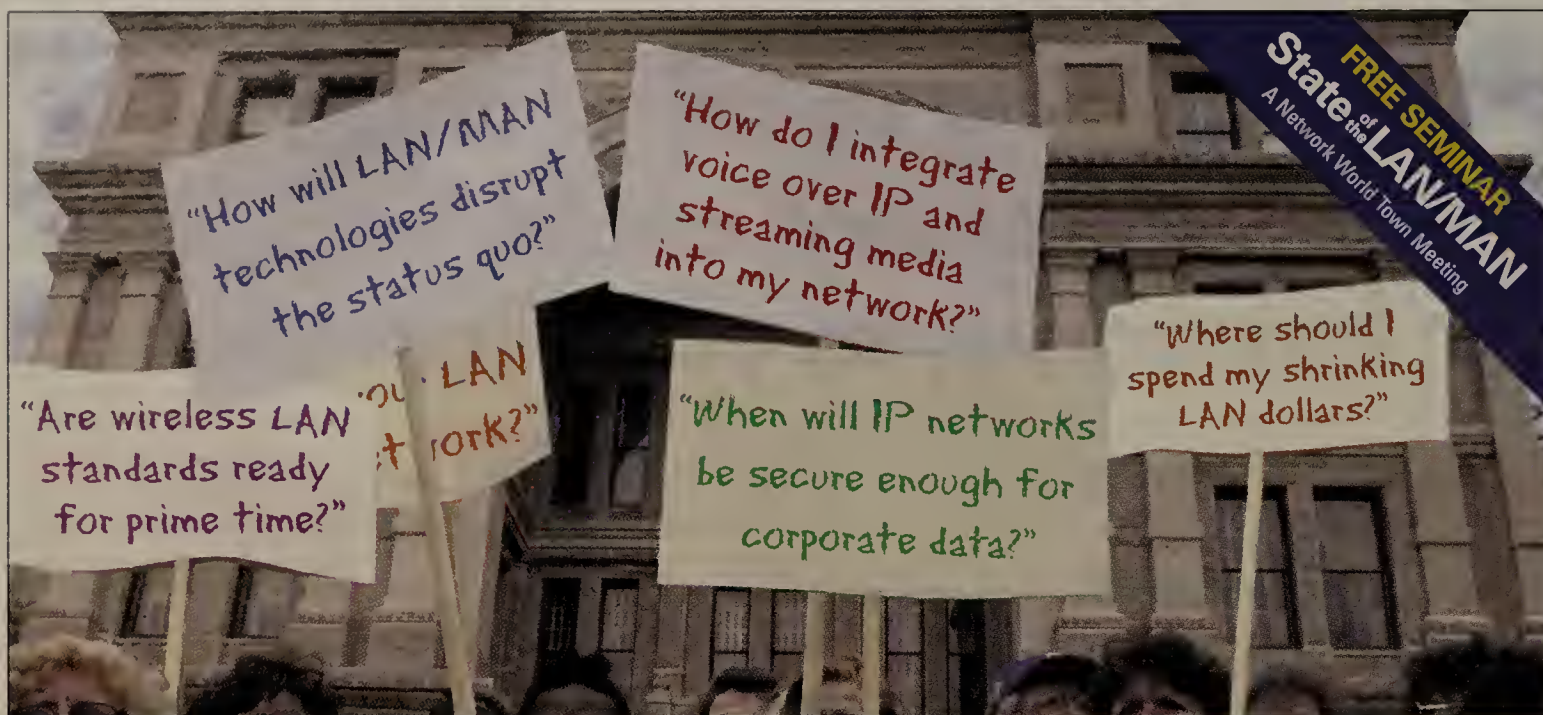
For those who are moving to an in-house messaging system, either NT Mail or MailSite could be an excellent choice. NT Mail has an excellent set of messaging features that aren't within the scope of this review. MailSite is, depending on your point of view, highly customizable or lacking in features. Shops without programming staff to dedicate to this product should probably pass on it.

SecurIQ will integrate into your Exchange or Lotus Notes system very tightly. If all you need is solid policy enforcement, you may have found your solution. Once Group Technologies adds some punch to the content scanning and adds some reporting, SecurIQ will be an all-around contender.

SuperScout and Message Inspector are virtually toe-to-toe, and neither is far behind MAILSweeper. SuperScout squeaked out second place because it has better documentation. Message Inspector has better contextual scanning, but SuperScout has more detailed control of attachment scanning. Both are great tools.

Even though the three top contenders were very close, MAILSweeper was ahead by a nose. While it was more difficult to install and master than the others, it offered a little bit more than the competition in almost every area.

Berkley is the LAN support supervisor with the University of Kansas. He can be reached at berkley@ku.edu.



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B1001F

1. What is the principal business activity at your location? (check ONE only)

- | | | |
|--|---|---|
| 01. <input type="checkbox"/> Manufacturing (Non-Computer/Communications OEM) | 09. <input type="checkbox"/> Utilities/Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry) | 16. <input type="checkbox"/> Manufacturing (Computer/Communications/OEM) |
| 02. <input type="checkbox"/> Finance/Banking | 10. <input type="checkbox"/> Government/Military | 17. <input type="checkbox"/> Resellers/VARS/VADs/Integrators/Distributors* (Computers/Communications) |
| 03. <input type="checkbox"/> Insurance/Real Estate/Legal | 11. <input type="checkbox"/> Consulting (Independent)* | 18. <input type="checkbox"/> Other (please specify) _____ |
| 04. <input type="checkbox"/> Health Care Services | 12. <input type="checkbox"/> Education | |
| 05. <input type="checkbox"/> Hospitality/Entertainment/Recreation | 13. <input type="checkbox"/> Carriers/Voice/Data/ISP | |
| 06. <input type="checkbox"/> Media/TV/Cable/Radio/Print | 14. <input type="checkbox"/> Web Hosting/HSP | |
| 07. <input type="checkbox"/> Retail/Wholesale Trade/Business Services | 15. <input type="checkbox"/> ASP/SSP/MSP | |
| 08. <input type="checkbox"/> Transportation | | |
- *Attn Consultants, Integrators, Distributors, Resellers: Please complete form based on ALL clients and your own business needs

2. P: What is your primary job function? (check ONE only)

S: What additional job functions are you involved in? (check ALL that apply)

- | | | | | | |
|--|--|--|----------|---|----------|
| P | S | P | S | P | S |
| <input type="checkbox"/> 1. <input type="checkbox"/> Network Management | <input type="checkbox"/> 4. <input type="checkbox"/> Datacom/Telecom Management | <input type="checkbox"/> 7. <input type="checkbox"/> Corporate Management (CEO, COO, CFO, Pres., VP, Dir., Mgr.) | | <input type="checkbox"/> 8. <input type="checkbox"/> Consultant (Independent) | |
| <input type="checkbox"/> 2. <input type="checkbox"/> CIO/CTO/ISIT/MIS/Systems Management | <input type="checkbox"/> 5. <input type="checkbox"/> Internet/Intranet/Web/E-Commerce Management | <input type="checkbox"/> 9. <input type="checkbox"/> Other (please specify) _____ | | | |
| <input type="checkbox"/> 3. <input type="checkbox"/> LAN Management | <input type="checkbox"/> 6. <input type="checkbox"/> Engineering Management | | | | |

3. What is the estimated value of network equipment and services that you specify, recommend, or approve the purchase of? (Please print the appropriate number code on the line next to each product category. Please complete ALL categories A-0.)

- | | | |
|-----------------------------------|--|---|
| 1. \$100 Million or more | A _____ Large Systems (Mainframes/Minis) | H _____ Internet/Web/E-commerce |
| 2. \$50 Million to \$99.9 Million | B _____ Desktops (Micros/Laptops/Workstations) | I _____ Intranet/Extranet |
| 3. \$25 Million to \$49.9 Million | C _____ Mobile (including PDAs, Wireless) | J _____ Internetworking (including Routers, Switches) |
| 4. \$10 Million to \$24.9 Million | D _____ Servers | K _____ Storage |
| 5. \$1 Million to \$9.9 Million | E _____ LANs | L _____ Remote Access |
| 6. \$100,000 to \$999,999 | F _____ WAN Equipment | M _____ Peripherals |
| 7. \$50,000 to \$99,999 | G _____ Carrier Services | N _____ Software |
| 8. Under \$50,000 | | O _____ Service/Support Services |
| 9. None of the above | | |

4. What is the total number of sites for which you have purchase influence? (check ONE only)

1. ☐ 100+ 2. ☐ 50 to 99 3. ☐ 20 to 49 4. ☐ 10 to 19 5. ☐ 2 to 9 6. ☐ 1 7. ☐ None

8. Please indicate the Web/Security/LAN/Internetworking/Wireless/Mobile/WAN Equipment/Carrier Services that you are currently involved in purchasing or plan to purchase: (check ALL that apply) A. Currently involved in purchasing B. Plan to purchase

- | | | | | | | |
|--|--|--|----------|----------|--|----------|
| WEB | A | B | A | B | A | B |
| <input type="checkbox"/> 01. <input type="checkbox"/> Web Servers/Software | <input type="checkbox"/> 04. <input type="checkbox"/> Web Development Tools | <input type="checkbox"/> 07. <input type="checkbox"/> Web Acceleration/Caching/Load Balancing | | | <input type="checkbox"/> 08. <input type="checkbox"/> Web Hosting Services | |
| <input type="checkbox"/> 02. <input type="checkbox"/> Web Traffic Management | <input type="checkbox"/> 05. <input type="checkbox"/> Web Content Management | <input type="checkbox"/> 09. <input type="checkbox"/> Other | | | | |
| <input type="checkbox"/> 03. <input type="checkbox"/> Electronic Commerce Tools | <input type="checkbox"/> 06. <input type="checkbox"/> Web Collaboration/Groupware | | | | | |
| SECURITY | A | B | A | B | A | B |
| <input type="checkbox"/> 10. <input type="checkbox"/> Firewalls | <input type="checkbox"/> 13. <input type="checkbox"/> DES Encryption Tools | <input type="checkbox"/> 16. <input type="checkbox"/> Certificate Authorities | | | <input type="checkbox"/> 17. <input type="checkbox"/> Biometrics | |
| <input type="checkbox"/> 11. <input type="checkbox"/> Anti-Virus Software | <input type="checkbox"/> 14. <input type="checkbox"/> Authentication Tools | <input type="checkbox"/> 18. <input type="checkbox"/> Other | | | | |
| <input type="checkbox"/> 12. <input type="checkbox"/> Private Key Encryption Tools | <input type="checkbox"/> 15. <input type="checkbox"/> Intrusion Detection | | | | | |
| LANs/INTERNETWORKING | A | B | A | B | A | B |
| <input type="checkbox"/> 19. <input type="checkbox"/> Fast Ethernet | <input type="checkbox"/> 26. <input type="checkbox"/> Storage Backup (Optical, Disk, Tape, RAID) | <input type="checkbox"/> 30. <input type="checkbox"/> Hubs/Intelligent Hubs/Stackable Hubs | | | <input type="checkbox"/> 31. <input type="checkbox"/> Cables/Connectors, Baluns | |
| <input type="checkbox"/> 20. <input type="checkbox"/> Gigabit Ethernet | <input type="checkbox"/> 27. <input type="checkbox"/> Network Test/Diagnostic Tools | <input type="checkbox"/> 32. <input type="checkbox"/> Wiring/Fiber Systems | | | <input type="checkbox"/> 33. <input type="checkbox"/> Net Management Systems | |
| <input type="checkbox"/> 21. <input type="checkbox"/> Layer 3-7 Switches | <input type="checkbox"/> 28. <input type="checkbox"/> Uninterruptable Power Supplies (UPS) | <input type="checkbox"/> 34. <input type="checkbox"/> Voice Over IP (VoIP) Tools | | | <input type="checkbox"/> 35. <input type="checkbox"/> Network Analyzers | |
| <input type="checkbox"/> 22. <input type="checkbox"/> ATM Switches | <input type="checkbox"/> 29. <input type="checkbox"/> Network Interface Cards (NICs, PCMCIA) | <input type="checkbox"/> 36. <input type="checkbox"/> Other Local-Area Network/Internetworking | | | | |
| <input type="checkbox"/> 23. <input type="checkbox"/> Routers | | | | | | |
| <input type="checkbox"/> 24. <input type="checkbox"/> Network Attached Storage (NAS) | | | | | | |
| <input type="checkbox"/> 25. <input type="checkbox"/> Storage Area Networks (SANs) | | | | | | |
| WIRELESS/MOBILE | A | B | A | B | A | B |
| <input type="checkbox"/> 37. <input type="checkbox"/> Wireless LANs | <input type="checkbox"/> 39. <input type="checkbox"/> Wireless LAN Extension Tools | <input type="checkbox"/> 41. <input type="checkbox"/> PDAs | | | <input type="checkbox"/> 42. <input type="checkbox"/> Other Remote/Wireless | |
| <input type="checkbox"/> 38. <input type="checkbox"/> Wireless/Cell Phones | <input type="checkbox"/> 40. <input type="checkbox"/> Mobile Data Equipment/Services | | | | | |
| WAN EQUIPMENT | A | B | A | B | A | B |
| <input type="checkbox"/> 43. <input type="checkbox"/> Frame Relay Equipment | <input type="checkbox"/> 48. <input type="checkbox"/> Voice/Video over IP Gateways | <input type="checkbox"/> 53. <input type="checkbox"/> DSUs/CSUs | | | <input type="checkbox"/> 54. <input type="checkbox"/> PBXs | |
| <input type="checkbox"/> 44. <input type="checkbox"/> Bandwidth Managers | <input type="checkbox"/> 49. <input type="checkbox"/> Modems | <input type="checkbox"/> 55. <input type="checkbox"/> Call Center Tools | | | <input type="checkbox"/> 56. <input type="checkbox"/> Videoconferencing Gear | |
| <input type="checkbox"/> 45. <input type="checkbox"/> Bandwidth Shaping/QoS Tools | <input type="checkbox"/> 50. <input type="checkbox"/> Cable Modems | <input type="checkbox"/> 57. <input type="checkbox"/> ISDN Equipment/Services | | | <input type="checkbox"/> 58. <input type="checkbox"/> Other WAN Equipment/Services | |
| <input type="checkbox"/> 46. <input type="checkbox"/> VPN Equipment | <input type="checkbox"/> 51. <input type="checkbox"/> xDSL Products | | | | | |
| <input type="checkbox"/> 47. <input type="checkbox"/> ATM Switches | <input type="checkbox"/> 52. <input type="checkbox"/> Diagnostic/Test Equipment | | | | | |
| CARRIER SERVICES | A | B | A | B | A | B |
| <input type="checkbox"/> 59. <input type="checkbox"/> Internet Access | <input type="checkbox"/> 64. <input type="checkbox"/> ATM Services | <input type="checkbox"/> 69. <input type="checkbox"/> Wavelength Services | | | <input type="checkbox"/> 70. <input type="checkbox"/> Dark Fiber | |
| <input type="checkbox"/> 60. <input type="checkbox"/> Private Lines | <input type="checkbox"/> 65. <input type="checkbox"/> Managed Services | <input type="checkbox"/> 71. <input type="checkbox"/> Other Carrier Services | | | | |
| <input type="checkbox"/> 61. <input type="checkbox"/> Frame Relay Services | <input type="checkbox"/> 66. <input type="checkbox"/> VPN Services | | | | | |
| <input type="checkbox"/> 62. <input type="checkbox"/> ADSL/DSL | <input type="checkbox"/> 67. <input type="checkbox"/> LAN-Extension Services | | | | | |
| <input type="checkbox"/> 63. <input type="checkbox"/> T-1/T-3 Services | <input type="checkbox"/> 68. <input type="checkbox"/> OC-3/OC-12 | None of the above (1-71) <input type="checkbox"/> 72. <input type="checkbox"/> | | | | |

9. Please indicate the Systems/Peripherals/Software/Applications/Business Services that you are currently involved in purchasing or plan to purchase: (check ALL that apply) A. Currently involved in purchasing B. Plan to purchase

- | | | | | | | |
|---|--|---|----------|----------|--|----------|
| SYSTEMS/PERIPHERALS | A | B | A | B | A | B |
| <input type="checkbox"/> 01. <input type="checkbox"/> Laptops/Notebooks | <input type="checkbox"/> 06. <input type="checkbox"/> Fax Servers | <input type="checkbox"/> 10. <input type="checkbox"/> Mainframes | | | <input type="checkbox"/> 11. <input type="checkbox"/> Printers | |
| <input type="checkbox"/> 02. <input type="checkbox"/> Desktops | <input type="checkbox"/> 07. <input type="checkbox"/> Remote Access Servers | <input type="checkbox"/> 12. <input type="checkbox"/> Enclosures/Racks/Furniture | | | <input type="checkbox"/> 13. <input type="checkbox"/> Other Computers/Peripherals | |
| <input type="checkbox"/> 03. <input type="checkbox"/> Intel-Based Servers | <input type="checkbox"/> 08. <input type="checkbox"/> Video Servers | | | | | |
| <input type="checkbox"/> 04. <input type="checkbox"/> Risc-Based Servers | <input type="checkbox"/> 09. <input type="checkbox"/> Mid-Range Systems (including workstations) | | | | | |
| <input type="checkbox"/> 05. <input type="checkbox"/> Print Servers | | | | | | |
| SOFTWARE/APPLICATIONS | A | B | A | B | A | B |
| <input type="checkbox"/> 14. <input type="checkbox"/> Desktop/Server Operating Systems | <input type="checkbox"/> 20. <input type="checkbox"/> Database Management Systems | <input type="checkbox"/> 25. <input type="checkbox"/> Middleware | | | <input type="checkbox"/> 26. <input type="checkbox"/> Document Management Tools | |
| <input type="checkbox"/> 15. <input type="checkbox"/> Network Management | <input type="checkbox"/> 21. <input type="checkbox"/> Customer Resource Management (CRM) | <input type="checkbox"/> 27. <input type="checkbox"/> Site Metering Tools | | | <input type="checkbox"/> 28. <input type="checkbox"/> Software Distribution Tools | |
| <input type="checkbox"/> 16. <input type="checkbox"/> Systems Management | <input type="checkbox"/> 22. <input type="checkbox"/> Enterprise Resource Planning (ERP) | <input type="checkbox"/> 29. <input type="checkbox"/> Data Warehousing | | | <input type="checkbox"/> 30. <input type="checkbox"/> Applications Development Tools | |
| <input type="checkbox"/> 17. <input type="checkbox"/> Directory Services | <input type="checkbox"/> 23. <input type="checkbox"/> XML Tools | <input type="checkbox"/> 31. <input type="checkbox"/> Other Software/Applications | | | | |
| <input type="checkbox"/> 18. <input type="checkbox"/> E-Mail | <input type="checkbox"/> 24. <input type="checkbox"/> Desktop Videoconferencing | | | | | |
| <input type="checkbox"/> 19. <input type="checkbox"/> Groupware | | | | | | |
| BUSINESS SERVICES | A | B | A | B | A | B |
| <input type="checkbox"/> 32. <input type="checkbox"/> Application Service Provider Services | <input type="checkbox"/> 33. <input type="checkbox"/> Systems Integration/Consulting | <input type="checkbox"/> 35. <input type="checkbox"/> Other Services | | | <input type="checkbox"/> 36. <input type="checkbox"/> | |
| <input type="checkbox"/> 34. <input type="checkbox"/> Education/Training Services | | None of the above (1-35) <input type="checkbox"/> | | | | |

10. Please indicate the platforms that are currently installed/planned: (check ALL that apply) A. Currently installed B. Planned for purchase

- | | | | | | | |
|---|---|--|----------|----------|--|----------|
| NETWORK PROTOCOLS | A | B | A | B | A | B |
| <input type="checkbox"/> 01. <input type="checkbox"/> TCP/IP v4 | <input type="checkbox"/> 03. <input type="checkbox"/> SNA/APPN/APPN/LLU6.2 | <input type="checkbox"/> 05. <input type="checkbox"/> NETBIOS/NETBUEI | | | <input type="checkbox"/> 06. <input type="checkbox"/> NFS | |
| <input type="checkbox"/> 02. <input type="checkbox"/> TCP/IP v6 | <input type="checkbox"/> 04. <input type="checkbox"/> Novell IPX/SPX | <input type="checkbox"/> 07. <input type="checkbox"/> Other Network Protocols | | | | |
| LAN/WAN ENVIRONMENT | A | B | A | B | A | B |
| <input type="checkbox"/> 08. <input type="checkbox"/> Gigabit Ethernet | <input type="checkbox"/> 13. <input type="checkbox"/> Token Ring/Token Ring Switching | <input type="checkbox"/> 18. <input type="checkbox"/> DSL | | | <input type="checkbox"/> 19. <input type="checkbox"/> ISDN | |
| <input type="checkbox"/> 09. <input type="checkbox"/> Switched Ethernet | <input type="checkbox"/> 14. <input type="checkbox"/> Layer 3-7 Switching | <input type="checkbox"/> 20. <input type="checkbox"/> Frame Relay | | | <input type="checkbox"/> 21. <input type="checkbox"/> Private Line T1, T3, OC-3, OC-12 | |
| <input type="checkbox"/> 10. <input type="checkbox"/> Fast Ethernet | <input type="checkbox"/> 15. <input type="checkbox"/> FDDI | <input type="checkbox"/> 22. <input type="checkbox"/> Other LAN/WAN Environment | | | | |
| <input type="checkbox"/> 11. <input type="checkbox"/> Ethernet | <input type="checkbox"/> 16. <input type="checkbox"/> Fibre Channel | | | | | |
| <input type="checkbox"/> 12. <input type="checkbox"/> ATM | <input type="checkbox"/> 17. <input type="checkbox"/> Wireless LANs | | | | | |
| DESKTOP/SERVER OPERATING SYSTEMS | A | B | A | B | A | B |
| <input type="checkbox"/> 23. <input type="checkbox"/> Windows 2000 | <input type="checkbox"/> 28. <input type="checkbox"/> Intel based UNIX | <input type="checkbox"/> 34. <input type="checkbox"/> Palm OS | | | <input type="checkbox"/> 35. <input type="checkbox"/> Windows CE | |
| <input type="checkbox"/> 24. <input type="checkbox"/> Windows 95/98 | <input type="checkbox"/> 29. <input type="checkbox"/> RISC based UNIX (incl. SOLARIS) | <input type="checkbox"/> 36. <input type="checkbox"/> Other Network Operating System | | | | |
| <input type="checkbox"/> 25. <input type="checkbox"/> Windows NT/Windows 2000 | <input type="checkbox"/> 30. <input type="checkbox"/> IBM MVS/VM/SE/ESA | | | | | |
| <input type="checkbox"/> 26. <input type="checkbox"/> Novell (NetWare 5.X, 4.X, 3.X, 2.X) | <input type="checkbox"/> 31. <input type="checkbox"/> OS/400 | None of the above (1-36) <input type="checkbox"/> 37. <input type="checkbox"/> | | | | |
| <input type="checkbox"/> 27. <input type="checkbox"/> LINUX | <input type="checkbox"/> 32. <input type="checkbox"/> Digital VMS | | | | | |
| | <input type="checkbox"/> 33. <input type="checkbox"/> Macintosh | | | | | |

Continued on next page...

Continued from page one...

5. What is the total number of Servers/Clients installed/planned at your location/in your entire organization? (check ONE box in each column)

SERVERS		CLIENTS	
At Location	Entire Org.	At Location	Entire Org.
A	B	C	D
<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>
<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>
<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>
<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>
<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>
<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>
<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>
<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>

6. What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check ONE only)	B. Involvement (check ALL that apply)
CORPORATE/ENTERPRISE: 1. <input type="checkbox"/> Entire Enterprise/ Multiple Enterprises 2. <input type="checkbox"/> Multinational Enterprise	1. <input type="checkbox"/> Create Network/IT Strategy 2. <input type="checkbox"/> Recommend/Specify Brand 3. <input type="checkbox"/> Approve Purchase
3. <input type="checkbox"/> Division/Multiple Divisions 4. <input type="checkbox"/> Department 5. <input type="checkbox"/> None	4. <input type="checkbox"/> Evaluate Products/Services 5. <input type="checkbox"/> Determine the Need 6. <input type="checkbox"/> None

7. What is the estimated number of employees in your entire organization/at your location? (check ONE in each section)

A. Entire organization:	B. At your location:
1. <input type="checkbox"/> Over 20,000 2. <input type="checkbox"/> 10,000 - 19,999 3. <input type="checkbox"/> 5,000 - 9,999 4. <input type="checkbox"/> 2,500 - 4,999	1. <input type="checkbox"/> Over 20,000 2. <input type="checkbox"/> 10,000 - 19,999 3. <input type="checkbox"/> 5,000 - 9,999 4. <input type="checkbox"/> 2,500 - 4,999 5. <input type="checkbox"/> 1,000 - 2,499
5. <input type="checkbox"/> 1,000 - 2,499 6. <input type="checkbox"/> 500 - 999 7. <input type="checkbox"/> 250 - 499 8. <input type="checkbox"/> 100 - 249 9. <input type="checkbox"/> 99 or less	

11. Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Servers	B - Workstations/Desktops/Laptops
1. <input type="checkbox"/> IBM (Mainframes) 2. <input type="checkbox"/> IBM RS/6000 3. <input type="checkbox"/> IBM AS/400 4. <input type="checkbox"/> Compaq/Digital/ Tandem	1. <input type="checkbox"/> Sun Microsystems 2. <input type="checkbox"/> H-P 3. <input type="checkbox"/> Compaq/Digital 4. <input type="checkbox"/> IBM
5. <input type="checkbox"/> Unisys 6. <input type="checkbox"/> H-P 7. <input type="checkbox"/> Other	5. <input type="checkbox"/> Dell 6. <input type="checkbox"/> Gateway 7. <input type="checkbox"/> Fujitsu 8. <input type="checkbox"/> Other

12. What is the estimated gross revenue of your entire company/institution? (check ONE only)

1. <input type="checkbox"/> \$20 Billion or More 2. <input type="checkbox"/> \$10 Billion to \$19.9 Billion 3. <input type="checkbox"/> \$1 Billion to \$9.9 Billion 4. <input type="checkbox"/> \$500 Million to \$999.9 Million	5. <input type="checkbox"/> \$100 Million to \$499.9 Million 6. <input type="checkbox"/> \$50 Million to \$99.9 Million 7. <input type="checkbox"/> \$10 Million to \$49.9 Million 8. <input type="checkbox"/> \$5 Million to \$9.9 Million	9. <input type="checkbox"/> \$4.9 Million or Less 10. <input type="checkbox"/> None of the above
--	--	---

13. For which areas outside of the U.S.A. do you have purchase influence? (check ALL that apply)

1. <input type="checkbox"/> Europe 2. <input type="checkbox"/> Asia	3. <input type="checkbox"/> South America 4. <input type="checkbox"/> Australia	5. <input type="checkbox"/> Middle East 6. <input type="checkbox"/> Africa	7. <input type="checkbox"/> Canada 8. <input type="checkbox"/> None
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NAME _____	JOB FUNCTION _____	E-MAIL ADDRESS _____
NAME _____	JOB FUNCTION _____	E-MAIL ADDRESS _____
NAME _____	JOB FUNCTION _____	E-MAIL ADDRESS _____
NAME _____	JOB FUNCTION _____	E-MAIL ADDRESS _____

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Cisco and other vendors are offering up big savings on network equipment — if you know how to ask.

■ BY LAUREN GIBBONS PAUL

Scott Renner was in for a pleasant surprise when he began shopping for network hardware early this year. His employer, \$18.4 billion Allfirst Financial, needed to upgrade to 100M bit/sec Ethernet at its 300 bank branches and regional offices. Replacing all the Cisco routers, switches and hubs along with most wiring would cost millions of dollars.

But whereas Allfirst had received a 28% discount off list price on Cisco gear in 2000, this time the savings were much greater. Renner, Allfirst's vice president of data network engineering, negotiated a 35% discount. And that wasn't even counting trade-in discounts. All told, the savings added up to nearly 50%, and Allfirst ended up spending \$1.5 million instead of \$3 million on the equipment.

"Discounts have gotten much better since last year," says Renner at Allfirst headquarters in Baltimore.

Discounts have indeed improved. In the past, the best discount you could expect to receive on Cisco gear was under 30%. Responding to competition, big network vendors such as Cisco, Enterasys Networks and Juniper Networks have steadily increased their discounts over the past several years. Many offer trade-in, competitive and educational programs that make the discounts even higher.

"Traditionally, it was the more you bought, the bigger the discount. That's no longer true at all," says Mark Fabbri, vice president and research director of networks for Gartner. In fact, smaller, aggressive companies are getting much better discounts than Fortune 500 counterparts because of their willingness to bargain and pit vendors against each other. Fabbri says the largest companies are overpaying at least \$500,000 per year for infrastructure equipment.

Many large companies negotiated a good discount — say, 30% — with Cisco or another vendor a year or two ago. But then they make the mistake of letting that discount stand year to year, while others are still haggling and getting better deals. "Large companies tend to get locked into their vendors," Fabbri says. The trick is reopening negotiations on existing discounts every time you sit down with a vendor.

For example, if in the past you received a 30% discount on Cisco routers and switches, see if you can't argue your way to a deeper discount for all your Cisco gear if you're considering buying Cisco's voice-over-IP products.

"Cisco does a great job of recognizing when you're locked in. Their strategy is to increase over time the footprint they have at a customer. They always have something new to sell you," Fabbri says. Use this as an opportunity to put the proposed new project out for competitive bids. It takes work, but no one ever got great discounts by blindly sticking with one vendor.



TOM COCOTOS

Another rule of thumb: Use the channel. Even if you are locked into one vendor (excellent service and a long-term partnership can be good reasons for this), cultivate relationships — and competition — among network resellers. Going through the vendor directly will result in higher prices.

Encouraging competition among resellers was one strategy Renner used. "Before, the negotiation was through different vendors of different equipment. Now the negotiation is the same equipment, just different [resellers]," he says. Allfirst ended up choosing Skyline Computer of Campbell, Calif., as its primary reseller.

Another approach, if you standardized on one vendor, is to make vendors compete against the used-equipment option. Rick Parkinson, vice president at retail exchange GlobalNetXchange, plans to use this strategy when he begins actively looking to upgrade some Cisco hardware.

"We're looking at the used market. The pricing is attractive and it gives us leverage against the vendor," says Parkinson at corporate headquarters in San Francisco.

As good as overall deals have been for customers, one specific type of discount is disappearing. Cisco recently discontinued its competitive migration program. "Cisco is getting squeezed. Margins have decreased. They're eliminating incentives where they didn't need them," Fabbri says.

Renner has watched as Cisco's discounts for trade-ins eroded for existing customers. "Before, we could get a trade-in of \$30 to \$40 per hub. Now it's more like \$3 to \$4. It's not worth it to for us to box this stuff up and send it in," he says.

Still, as a customer who usually spends several million dollars per year with Cisco, Renner is optimistic that discounts will remain high. Says Renner, "I don't think the discounts are going to be affected in the near term."

Paul is a freelance writer in Waban, Mass. She can be reached at lauren paul@mediaone.net.

Tips for getting the best discounts:

- If you want the deepest discount, put every project out to bid. It's exhausting and time-consuming, but it results in the best savings.
- Make your vendor earn new business by granting better discounts on existing technology.
- Make the resellers bid against each other, even if you're tied to one equipment vendor.
- Don't forget to include maintenance plans in the negotiations, although you may not get as deep a discount as on hardware (typically 10% for maintenance vs. over 35% for hardware).

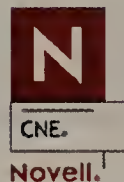
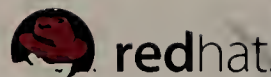
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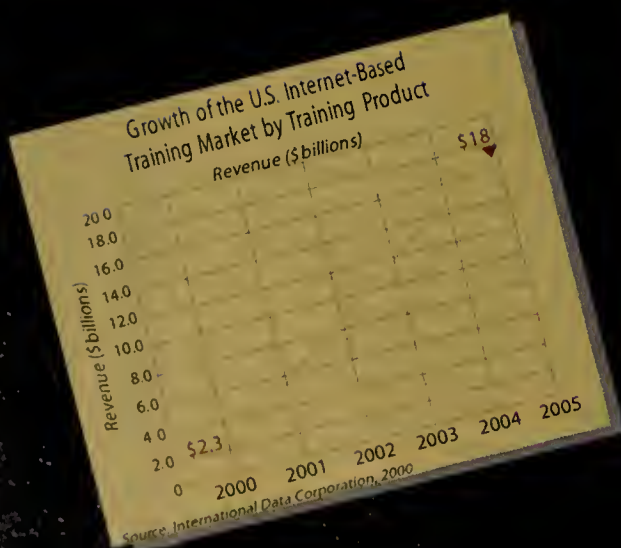
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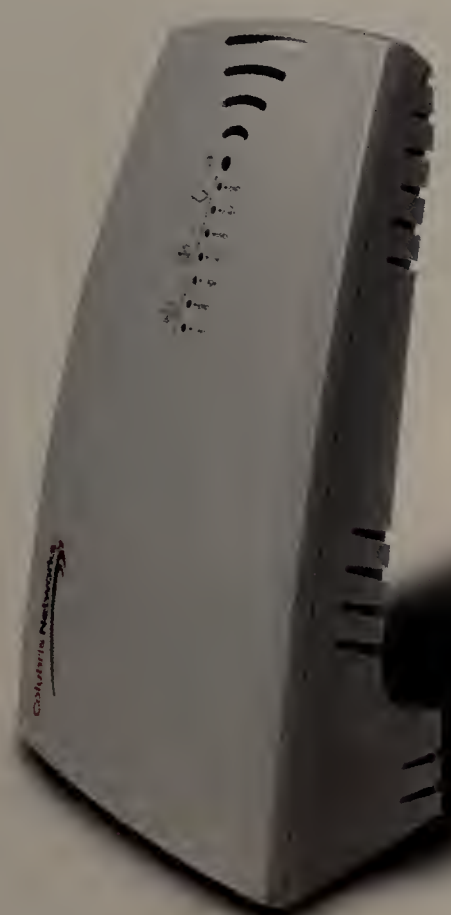
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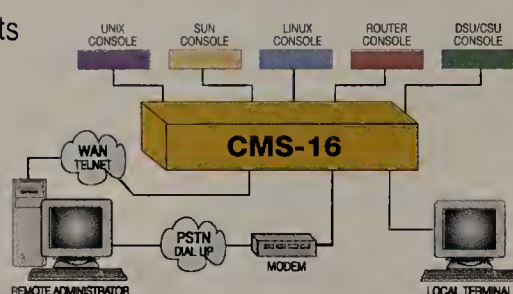
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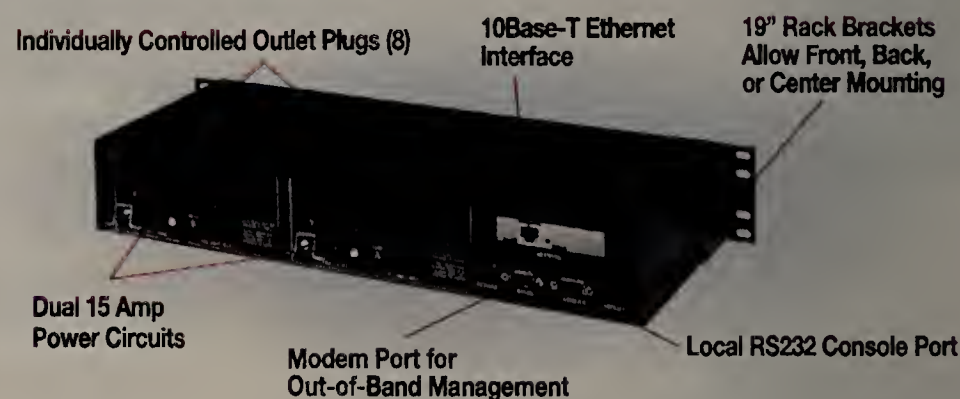


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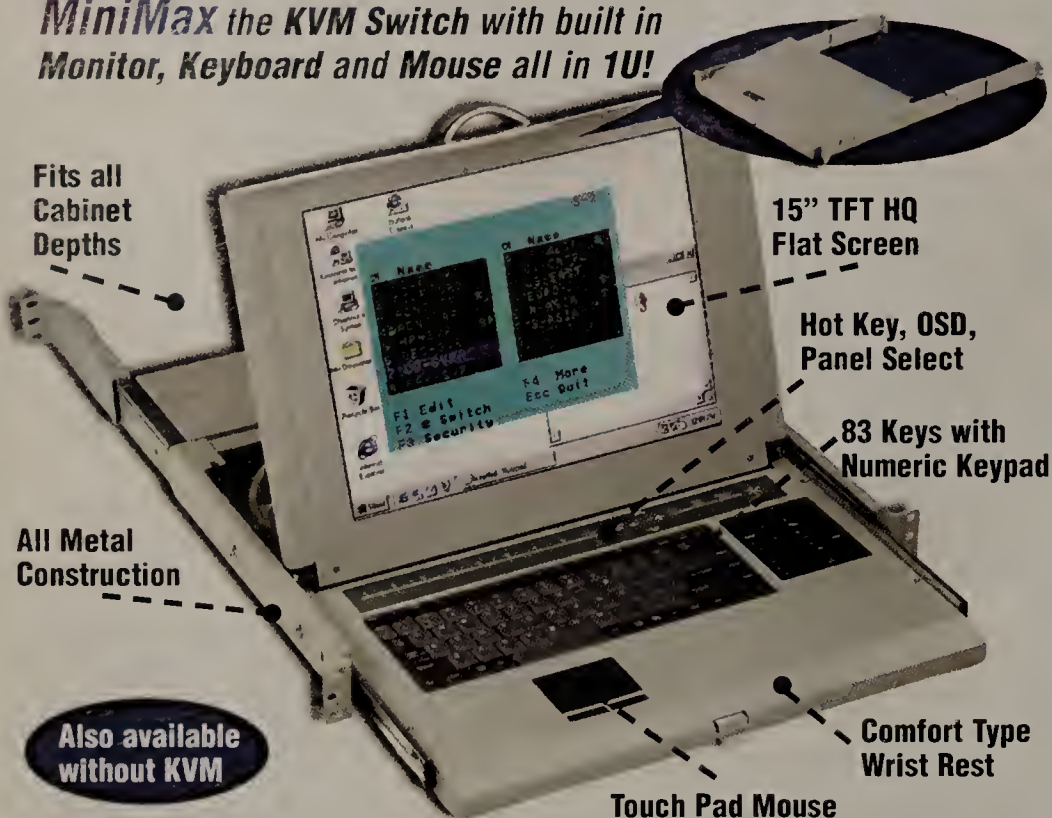
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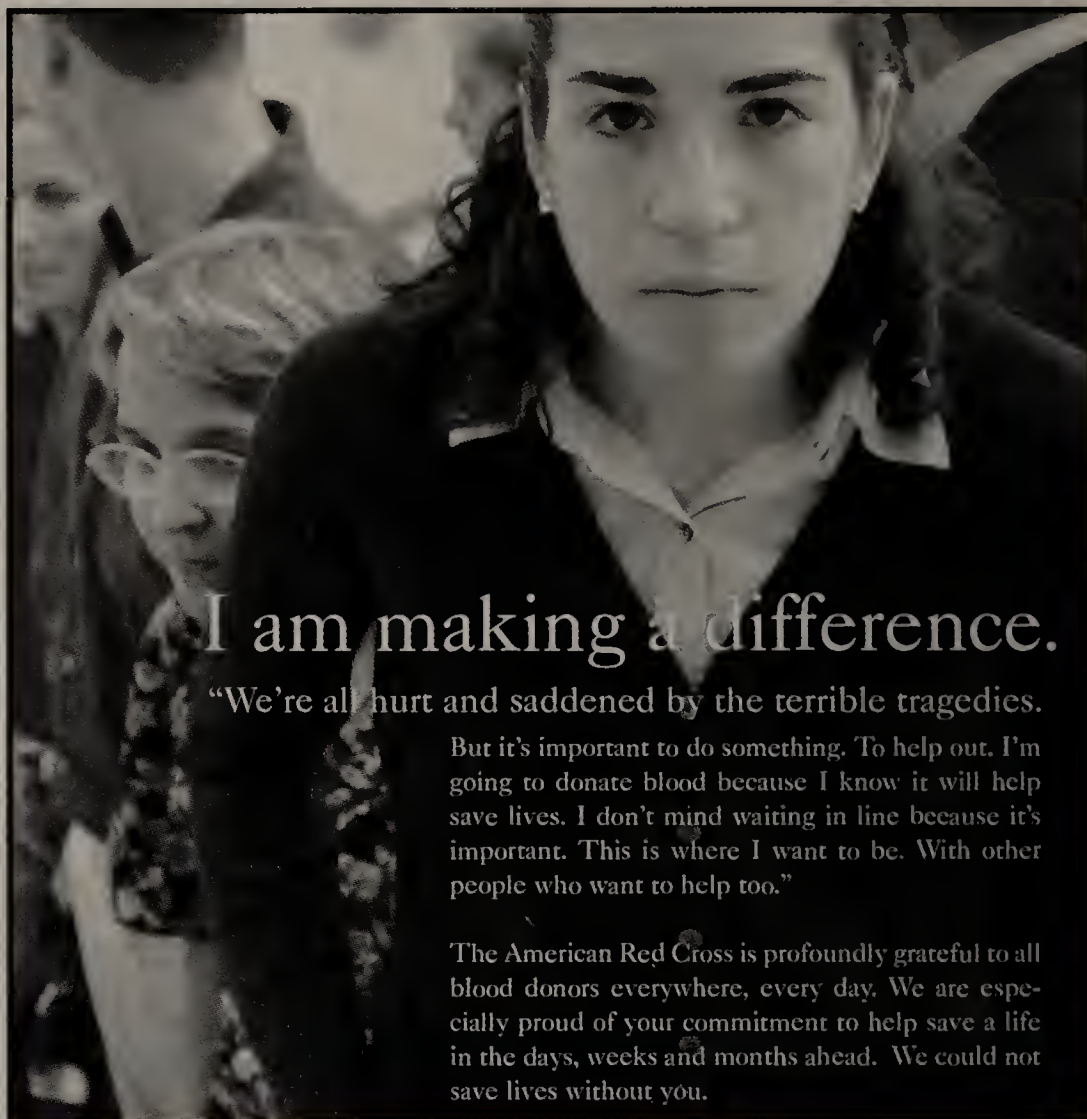
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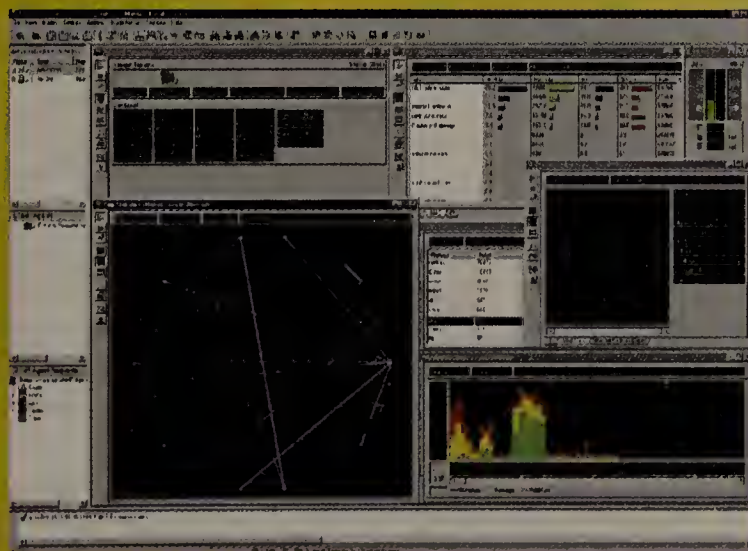


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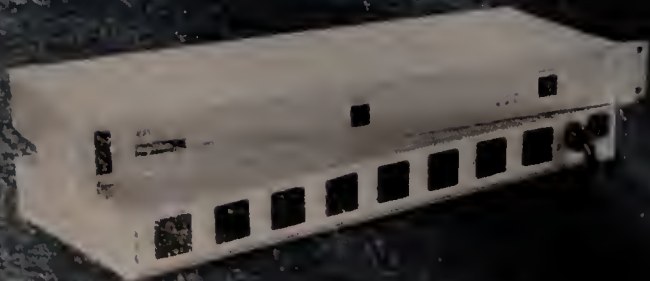
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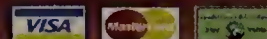
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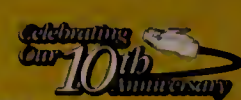
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Software Engineer sought by company in Englewood, CO specializing in DBS services to work in Englewood & other unanticipated job sites in the US. Under close supervision, engage in full life cycle software development. Specifically, design & develop client/server applications for communications processes. The software applications incorporate relational database management systems and run on WindowsNT platforms. Analyze requirements, create designs & design documentation. Code, test, debug, modify & enhance the software applications. Work is closely monitored. Develop test procedures & methodology & prepare test proposal. Test software developed by other groups as needed. Train users as needed. Utilize C++, Visual C++ & Access in the design and development process. Requires Bachelor's in comp. sci. or eng. (incl. mech'l eng. or mfg. sys. eng.); working knowledge of C++, WindowsNT operating systems and developing testing methodology & procedures (working knowledge may be gained through employment experience or in an academic program). 8am-5pm, M-F; \$48,000/yr. Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number CO 5005851

Database Administrator (2 positions)-Will coordinate physical changes to computer databases and code, test and implement the database applying knowledge of database management systems. Will design logical and physical databases and coordinate database development. Requires Master in Computer Science, Engineering or Mathematics. Must have 4 years experience in the job offered or 4 years experience as Network Administrator. 5 day, 40 hr/wk, \$75,000/yr. Please mail resumes to Colorado Department of Labor and Employment Programs, ATTN: Jim Shimada, Two Park Central, Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117 and refer to order number CO5005694.

Manager of Networking and Technical Support. Midwest based, international distributor seeks an experienced IT Manager to lead and direct department focused on network administration and technical support. Position requires working knowledge of Pilot Systems, Inc. software applications. B.S. Degree in Computer Science or related area required, advanced degree strongly preferred. Please forward resumes and salary requirements to: Derco Aerospace, Inc., Human Resources - Ad # IT-CW, P.O. Box 250970, Milwaukee, WI 53225.EO/AEE

Micromedex, Inc., an IT/Publishing Co seeks Sr. Quality Assurance Engr specializing in s/ware applic dvlpmnt at its Greenwood Village, Co office (MS+3 yrs exp or BS+5 yrs exp). Respond by resume to HR-MS, 6200 S. Syracuse Way, Ste 300, Greenwood Village, CO 80111.

Software Engineer sought by company in Denver, CO specializing in business software solutions to work in Denver & other unanticipated job sites in the US. Under close supervision, engage in moderately complex tasks involving design & development of manufacturing software applications that incorporate client/server architecture, & interface with ORACLE relational database management systems &/or the tools used to create such applications. Analyze user requirements. Create designs and design documentation. Code, test, and de-bug the software applications. Use programming language C & MRP concepts in the design & development process. Work is closely monitored. Requires Bachelor's in comp. sci. or related field (incl. mfg. systems eng.); 1 yr. in development of soft-ware applications that interface with ORACLE relational databases; working knowledge of programming language C & manufacturing resource planning (MRP) concepts (working knowledge may be gained through employment experience or in an academic program). 8am-5pm, M-F; \$52,000/yr. (2 openings). Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number CO5006010.

Manager of Consulting Methodologies sought by company in Denver, CO specializing in business software solutions to work in Denver & other unanticipated job sites in the US. Develop software implementation, integration & customization tools, techniques & methodologies that will enable international clients & field consultants to effectively implement ERP (enterprise resource planning) software applications. Train technical field consultants in use of the tools techniques & methodologies. Develop automated business process testing tools & scripts for use by technical field consultants. Develop standard business process models that can be used by international clients in business process re-engineering to standardize & optimize their manufacturing, logistics, & distribution processes. Requires 2 yrs. implementing ERP software applications, including business process re-engineering of manufacturing, logistics & distribution processes. 8am-5pm, M-F; \$88,600/yr. Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number CO 5006014.

Sierra IT, Inc. is a global IT systems integration and solutions firm headquartered in Dearborn, Michigan. We provide IT specialty services in business consulting, systems development, integration, and managed support. We are currently looking for the following:

Software Engineers: to research, execute design and develop Internet applications using C++, JAVA, Corba, XML. Develop specific web based financial applications using, Sybase databases. Requires a Master's degree in Computer Science or related and 1+ year of experience.

Programmer Analysts To plan, develop, test, and document web technologies and Java technologies for business procedure analysis. Use Visual Basic for redefining data and for EDP. Design product features to meet requirements. Requires Bachelor's degree in computer Science or related and 1+ year of experience.

Send your resume to: HR Manager, Sierra IT, Inc., 3 Park Lane Blvd., Suite #521W, Dearborn, MI 48126

Software Engineer sought by company in Englewood, CO specializing in software development, sales & services to work in Pittsburgh, PA & other unanticipated job sites in the US. Under close supervision, design & develop geographic information systems software applications for utilities & telecommunications companies. The software applications incorporate client/server architecture & some incorporate relational database management systems; & run on UNIX & Windows operating systems. Analyze requirements, code, test & debug the software applications. Implement & customize applications per client needs. Create documentation. Provide user training as needed. Work is closely monitored. Utilize Pro C, proprietary programming languages & proprietary tools in designing & developing the software applications. Requires Bachelor's in computer science or information systems management; working knowledge in geographic information systems & telecommunications (working knowledge may be gained through employment or in an academic program). 8am-5pm, M-F; \$54,590/yr. Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number CO5005853.

Systems Applications Specialist, Romerville

Use Visual Basic, PowerBuilder & ASP to design & develop client/server & web based applications; work with end users & business analysts to define goals for multiple applications. Use structured analysis, data modeling & information engineering to design the applications. Prepare specifications, flow charts, and diagrams that describe the system(s) in terms that the user can easily understand. Specify the user input required by the system, design the processing steps, format the output to meet the user's needs; define system security requirements; determine hardware requirements. Ed: Master in Computer Science, 1 yr. exp. in job Annual Salary: \$83,000.00; 37.5 hr/wk.

Applicants must show proof of legal authority to work, including those with temporary work authorization. Applicants to send resumes to: Illinois Dept. of Employment Security, 401 South State St. -7 North, Chicago, Illinois 60605 Attention: Shella Lindsey Reference #V-IL 26716-L AN EMPLOYER PAID AD NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER

PRINCIPAL SOFTWARE ENGINEER

For company in Denver, research, architect, design, develop software systems in conjunction with product development for EAI (Enterprise Application Integration) and internet applications in the GIS and utility industries. Use Oracle, SOL Server, C/C++, Microsoft.NET, Site Server, Vignette, ActiveWorks, ESRI and Java technologies. Develop and direct software testing, programming & documentation using structured methodologies, including RUP (Rational Unified Process). Req. MS or foreign equiv. in comp. sci. or related field plus 1 yr. exp. in the position or related occupation of software engineer. Also req. working knowledge of GIS and Microsoft Certified Solutions Developer certification. 8-5, 40 hrs./wk., \$90,000/yr. Mail resume to: Colo Dept. of Labor, Attn: Jim Shimada, 1515 Arapahoe St., #400, Denver, CO 80202-2117. Refer to job order number CO5005642.

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The Developer Consultant provides services and technical support to clients through software application development. Responsible for analysis, design, coding, testing, and integration of complex software application solutions. Requirements include an MS in Engineer/Computer Science/Information Systems, MBA or BS in these disciplines, plus 0-5 years of experience. Experience with database systems including DB2/2, Oracle, and Sybase required, along with knowledge of C, C++, Visual Basic, Client/server win95/98/2000, and/or NT, and and/or UNIX. Knowledge of at least one network operating system (Novell, LAN Manager, LAN Server, Banyon Pines) necessary. Job locations are throughout the US.

Aspect offers outstanding career opportunities and a highly competitive compensation/benefits package. To forward your resume (referencing Job Code: ACS001/RIR/INFOW), e-mail: staffing@aspect.com; fax: (408) 325-2942; or mail: Aspect Communications, Attn.: Staffing Department, 1310 Ridder Park Drive, San Jose, CA 95131. EOE/AEE. www.aspect.com

PROJECT ENGINEER

For company in Denver, direct, coordinate definition, construction, implementation of Smallworld stfware systems at client sites within defined time, budget. Responsible for integration of Smallworld stfware into clients site gap analyses, managing customs solution design/dvlpmt/implementation, customer technical interface. Managerial duties incl. scheduling, controlling scope of project, customer communication, internal team support, project reports. Travel req. Req BS or foreign equiv in comp sci or related field plus 3 yr exp in the position or related occupation of GIS applications dvlpmnt. Also req working knowledge of Smallworld. 8-5, 40 hrs/wk, \$110,000/yr. Mail resume to: Colo Dept. of Labor, Attn: Jim Shimada, 1515 Arapahoe St., #400, Denver, CO 80202-2117. Refer to job order number CO5005913.

Software Engineer sought by company in Denver, CO specializing in business software solutions to work in Denver & other unanticipated job sites in the US. Under close supervision, engage in moderately complex tasks regarding the design & development of software applications & software tools. These software applications incorporate client/server architecture &/or are web-based. Additionally, design and develop middleware which allows different software applications to communicate with one another. Analyze requirements. Create designs & design documentation. Code, test, & de-bug the software applications. Use XML technology, Active Server Pages (ASP), Visual C++, & C in the design & development process. Work is closely monitored. Requires Bachelor's in computer science or related field. 8am-5pm, M-F; \$51,350/yr. (2 openings). Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number CO 5006018.

SAP Functional Consultant sought by company in Boulder, CO specializing in software consulting to work in St. Louis, MO & other unanticipated job sites in the US. Perform thorough business needs analyses & identify product configurations & define connectivity & integration requirements in the context of the SAP R/3 system. Identify training, testing, & database conversion requirements & provide technical support documentation for the financial accounting & controlling SAP modules (FI/CO). Serve as project team lead to integrate FI/CO with other SAP modules, including purchasing, human resources & materials management. Using ABAP programming language, produce programs to produce reports necessary for clients. Requires 4 yrs. as an SAP consultant; working knowledge of SAP R/3 FI/CO, purchasing, human resources, & materials management modules, as well as ABAP programming language & team leader or team management processes. 8am-5pm, M-F; \$100,000/yr. (2 openings). Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number CO5005840.

Junior Programmer. Determine needs, write programs and debug under supervision. Provide client assistance in using software. Req: Bachelors in Comp. Sci., Comp. Eng., Business Admin or Economics with courses in programming. 40-hr. wk Job/ Interview site: Glendale, CA. Please send resume to Vidfilm International Digital, 1631 Gardena Ave., Glendale, CA 91204, Attn: HR Dept. BX-9

Senior IT Consultant (Senior Software Engineer) sought by company in Denver, Colorado, specializing in land management services/solutions to work in Houston, Texas and other unanticipated sites in the U.S. At a senior level, design, develop, enhance and support integrated object-oriented software applications that run in a Windows environment and/or are Web-based for land management in the oil and gas industry to manage multiple leases, contracts and division orders. Software applications incorporate Graphical User Interfaces (GUIs), client/server architecture and Oracle Relational Database Management Systems. Use PL/SOL, JAVA, Visual Basic, ASP, PowerBuilder, the Install Shield tool, and other development tools and languages. Engage in project management as required. This position requires a master's or equivalent - specifically it requires a master's degree or foreign equivalent in computer science, engineering, mathematics, or a related field plus three years of progressively more responsible software development experience or a bachelor's degree or foreign equivalent in computer science, engineering, mathematics, or related field plus five years of progressively more responsible software development experience; and working knowledge of the design and development of oil and gas software applications. PowerBuilder, Oracle, and PL/SOL; 8am - 5pm, M-F; \$72,000/yr. Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400, 1515 Arapahoe, Denver, CO 80202, & refer to Job Order Number CO 5005819

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SOFTWARE ENGINEER to research, analyze, design, develop, test, and implement clients application systems, subsystems, and modules; prepare job specifications, programs and online transactions; provide technical support. **ENVIRONMENT:** DB2, COBOL, CICS, MVS, and COOL:GEN. Requires MS in Comp. Sci. or Engrng or Mathematics + 3 yrs exp. in the job offered or any job title with the same duties and environment. Employer will also accept, in lieu of master's degree, bachelor's degree with similar majors + 5 yrs of post college progressive work exp. 40 hrs/wk. job location. Norcross, GA and other unanticipated clients' sites in the U.S. Send resume with salary requirements to: The President, Concept Software & Services, Inc., 7094 Peachtree Industrial Blvd., Suite 201, Norcross, GA 30071.

SOFTWARE ENGINEER sought by life insurance co. in NYC. Candidates must have M.S. Computer Science or a related field and at least 1 year of experience in design & development of s/w systems. Knowledge of COBOL, Oracle/SOL Plus, HP9000 Unix, Visual Basic, MS Windows NT/Terminal Server, Windows 95 and DOS Commands required. Send resume to: Melanie Johnson, Director, Human Resources, MONY Life Insurance Company, One MONY Plaza, MD 3-1, Syracuse, NY 13221.

Senior Software Engineer/ Senior Product Specialist: Select, manage and implement technical application components, and ensure the technical solutions solves the business problem. Focus on web development, e-commerce, and Microsoft internet technologies. Participate in development of vision and specify key performance requirements and conduct impact analysis of process redesign on existing technical infrastructure and guide others to understand the impact. Develop and distribute reusable technical components (standard objects and software). Develop high-level and detailed program specifications for all levels of complexity. Determine standards and practices to remain current on technical trends. Instruct groups of 12-16 in technical areas of web development and programming instructor, with self-developed techniques and training programs. Requirements include a Master's degree or equivalent in Computer Science, Mathematics or related field; equivalent-a Bachelor's degree or equivalent and five years of work experience in software engineering. Applicants must have unrestricted authorization to work in the United States. Salary \$86,000/year. 40 hours/wk. The advertisement will include the following statement. Respond with two copies of resume to Case #20015746, Labor Exchange Office, 19 Staniford St., 1(superscript: st) Fl., Boston, MA 02114.

Software Engineer (Atlanta, GA): Design, develop, implement and maintain Cbeyond Siebel infrastructure, using Siebel ICM, Siebel Email Package Communication & Siebel Workflow. Work w/ Siebel Tools, Siebel VB, JAVA, C++, SOL, JavaScript & HTML. Req. MS in CS or its foreign degree equivalent plus 1-yr. exp. in job offered. Resume to: Joan Tolliver, VP of HR, Cbeyond Communications, 320 Interstate North Pkwy, S.E., Ste 300, Atlanta, GA 30339.

Software Engineer wanted by Wide Area Network Design Laboratory (WANDL) in Bound Brook, NJ. Must have a Master's degree in computer science or related fields with at least two years experience in software systems design and development with emphasis on network and distributed system. Knowledge of Network/Internet communication and management required. Please send resume to Human Resources, WANDL, Inc 2121 US Highway 22 W, Bound Brook, NJ 08805. Fax number 732-868-0014.

Sr. Programmer/Analyst: Birmingham, AL-Responsible for the design, programming, testing & documentation in support of existing applications & the development of new applications. Bachelor's in Computer Science or related field & 2 yrs exp. in a related programming or systems analysis position. Alternatively, employer will accept as qualified 4 yrs exp. in the position offered or 4 yrs. exp. in a related programming or systems analysis position. Experience must include at least 2 yrs exp. in RGP programming on an IBM AS/400 Midrange Computer & 1 yr exp. in the use of Island Pacific Merchandise Management System. \$60,944 per yr. Forward resume w/ copy of ad. to C. Adams, Hibbett Sporting Goods, 451 Industrial Lane, Birmingham, AL 35221.

SYCAMORE NETWORKS

Sycamore Networks is the leader in Intelligent Optical Networking. Our products are laying the foundation for the next generation telecommunications infrastructure by bringing intelligence to the massive installed fiber optic network. We have the following positions available at our offices in Chelmsford, MA; Tulsa, OK; Hemdon, VA; Portland, OR; Dallas, TX; Alpharetta, GA; and Boca Raton, FL:

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- Hardware Engineer
- Network Consultant
- Network Support Engineer
- Mechanical Engineer
- Quality Test Engineer
- Systems Integration Test Engineer
- Business Development Manager

The aforementioned positions are available at all levels and require a minimum of a B.S. or M.S. and 0-5 years' industry experience.

• Optical Engineer/Scientist with experience in Optical, IP, ATM, Sonet network architecture and design. Ph.D required. For all positions, send resumes to: Staffing, Sycamore Networks, 10 Elizabeth Drive, Chelmsford, MA 01824, Fax: (978) 256-3434, OR e-mail: resume@sycamorenet.com

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Data Conversion, Inc., a leading IT consulting firm, has job opportunities for IT professionals (Software Engineers, Programmer/Analysts, Systems Analysts, etc.) and business development professionals. Technical positions require experience with: Java, HTML, Oracle, C++, COBOL, JavaScript, etc. Positions require relocation to anticipated job sites throughout the United States. Qualified candidates send resumes to: Sanjay Bhasin, Manager, Human Resources Department, DCI, Inc., 238 Main Street, Cambridge, MA 02142.

Sr. Sys. Analyst wanted by NJ based IS/IT Professional Consulting Services Firm for locs throughout US. Must have Master's degree or equiv. in Comp. Sc., Engng. or Phys. Sc. and exp. in Comp. S/W dev. and/or Consulting. Respond to: HR Dept., Instasofte Inc., 173 Essex Avenue, Metuchen, NJ 08840 (Ref: 7911IM).

The New York City Financial Information Services Agency has issued a Request for Proposal for Business Recovery Services. Request for Proposals may be obtained by calling Adele Croce at (212) 857-1113. Further details and specifications may be found within the RFP. The deadline for receipt of proposals is 4 PM on November 5, 2001.

Sr. Software Engineers: duties include research, design & development of start-up, boot & diagnostic code for embedded computer & telephony & access systems; early stage & product design; prototyping bring-up in a broad range of technology. Min. Reqts: Master's degree (foreign equiv. accepted) & 3 yrs prog. exp. in job offered or rel. occup. OR BS/BA (foreign equiv. accepted) CS, IT, EE or rel. PLUS 5 yrs prog. exp. in job offered or rel. occup. Also must possess exp. with C/C++, assembly language programming & LAN/WAN protocols & tech. Salary neg. Standard company benefits. EEO. Forward resume to: Kristen Byrne, Director of Human Resources, Mapletree Networks, Inc., 315 Norwood Park South, Norwood, MA 02062.

SYSTEMS ANALYST Analyzes user requirements procedures, and problems to automate processing or to improve existing computer systems. Must be able to travel. Bachelor of Science, engineering or math-related and 2 yrs. exp. in job offered or in analysis, design, development and implementation of various I.T. application req'd. Included in the 2 yrs job exp., JAVA 2.0, Servlets, JSP, RMI, EJB, OOAD with Rational Rose, UML, XML, XSL, XLINK, Dreamweaver, Net Dynamics, Cold Fusion, Weblogic, Websphere req'd. \$70,000/year. Apply by resume to Murali K Suddala, President, Capricorn Systems, Inc., 3569 Habersham -at-Northlake, Bldg K, Tucker, Georgia 30084.

Software Engineer: design, develop, code, test and debug system applications. Prepare detailed technical specifications and create business and scoping documents, including design and development cost estimates. Analyze and revise existing system logic for current and new systems. Provide internal technical support for real time production issues. Present and participate in code and specification walkthroughs. Req. BS or equivalent (based on education and work experience) in CS. Plus three years exp. in job offered or as programmer. Proficiency in C++, Progress 4GL, OO, RDBMs, and html. \$73,000.00/yr. 40 hrs/wk. 9-5 Contact McCamish Systems, L.L.C. Human Resources, 6425 Powers Ferry Road, Third Floor, Atlanta, Georgia 30339, Fax: 770-690-1800

Network Engineer, wanted by optical networking system developer in Reston, VA. Must have Bachelor's degree in Electrical Engineering or related field and 2 yr. exp. in job offered or in systems engineering. Respond to Doreen Connors, HR Department (ref# 052), Tellium, Inc., 2 Crescent Place, Oceanport, NJ 07757.

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Typical responsibilities for Project Managers at Fireman's Fund include: managing multiple IT projects such as business applications, architecture, data marts, operational data stores and infrastructure; managing and mentoring your people, taking responsibility for the complete project lifecycle from developing tactical and strategic approaches to cost/benefit analysis and risk assessment. Strong negotiation and influencing skills will be key to working successfully with sponsors, business leaders, functional managers, IT development teams and vendors. You'll also need experience defining roles and responsibilities, allocating resources, resolving conflicts and managing change. Proficiency in the IT project methodology life cycle is a must, while application development and commercial industry experience is strongly desired. Please visit www.firemansfund.com/careers/ita3.html for more information on our current opportunity in Novato, CA.

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IT Careers in Data Warehousing



It's great to be able to collect all that data about customers and suppliers, delivery schedules and invoices. However, if the data can't be related and put in a context that does more than review – that enables decisions and helps forecast and predict – then the data isn't very valuable.

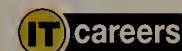
That's the concept behind NCR's Teradata product. Its Teradata division is pushing the envelope of data warehousing technology to assist businesses with actively collecting and analyzing data. Vickie Farrell, vice president of Teradata Database Marketing, a division of NCR, says the Teradata product originally was released in 1984. "The field of relational database technology is every bit as exciting today as it was 20 years ago," says Farrell. "We have an innovative approach to dealing with heavy duty analytics. We're applying this in ways not even dreamed of back in '84."

Farrell says future trends call for companies to think about data in

deeper and more interconnected ways, moving toward an active function that provides up-to-date information that can be used to serve customers vs. creating static reports that summarize what happened in the past. "We need to integrate the data across an organization. For instance, in retail you don't want to separate store and catalog transactions from web-based transactions. It's important to have all the data to be able to see the trends.

"Another example is that in selling some major system or product, a sales rep may think the customer is good because he buys a lot. The finance group may think the customer is valuable because payments come in on time. And the service department may know the customer is costing more than the account value. However, no one has a complete understanding of the customer's value. This centralized warehouse approach for database management provides by far a higher level of success," explains Farrell.

In addition to groundbreaking work in the area of database management and warehousing, Teradata offers a "great employment opportunity," according to Farrell. "Talented people join our team to help solve our customers' problems, and then we do what it takes to help our customers be more successful. That's why this company has survived for the last 116 years." The Teradata division employs individuals worldwide in software engineering, sales, marketing, finance and support. "At Teradata there is a culture of information sharing and problem solving that drives innovation."



For more job opportunities with data warehousing firms, turn to the pages of ITcareers.

- If you'd like to take part in an upcoming ITcareers feature, contact Jonis Crowley, 650.312.0607 or jonis_crowley@itcareers.net.
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Database: Oracle, SQL Server, Sybase and Rdb

Travel to anticipated job sites throughout the United States required. Applications can be sent to North America F & A Manager, Digital Equipment (India) Ltd., 334 South Street, SHR 3-2/C6, Shrewsbury, Massachusetts 01545.

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C3i Inc, sales force automation support, training and professional services company, has an opening for a Project Manager in Morristown, NJ to develop & implement Siebel Implementation projects. MS/BS in Comp Sci or Engg or Business with relevant work exp reqd. Send resume to: Michael Paul Williams, C3i Inc, 83 Maiden Lane, NY, NY 10038.

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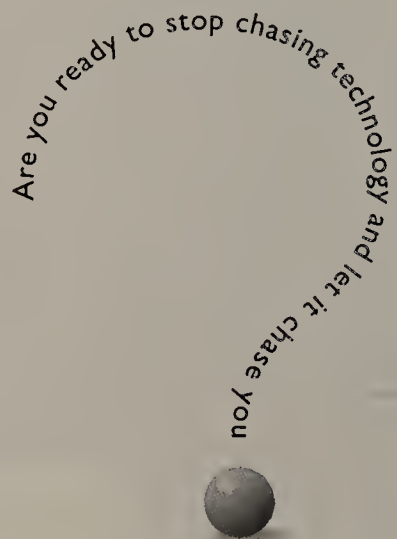
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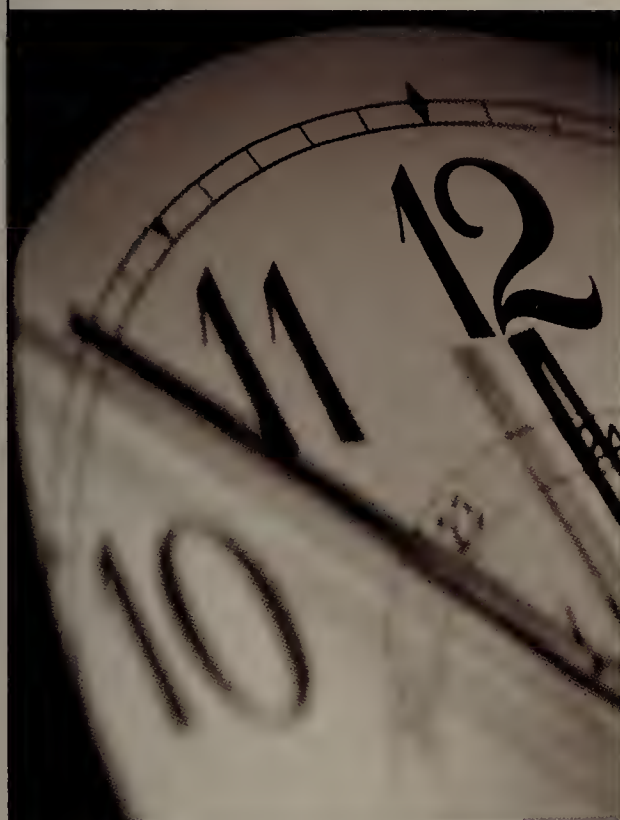
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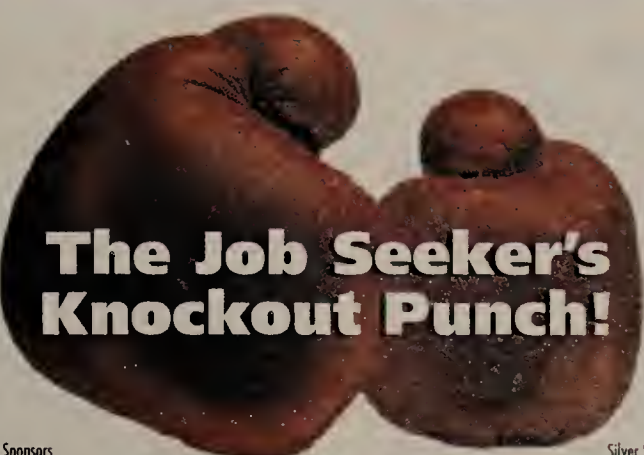
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Network Associates disbands PGP unit

■ BY ELLEN MESSMER

Network Associates has dissolved its PGP business unit and plans to sell off the division's gateway firewall and encryption products.

PGP's other technologies, including the CyberCop vulnerability assessment tool, PGP VPN, PGP E-Business Server and PGPFire, will be branded and sold as McAfee tools.

The PGP unit, with 250 employees, accounted for about 9% of revenue at Network Associates. The PGP name was introduced more than a decade ago when Phil Zimmerman developed the Pretty Good Privacy mail encryption product, which was later sold to Network Associates. McAfee Director of Marketing Michael Callahan says there are a number of reasons why the security vendor wants to sell off the Gauntlet and WebShield firewall/VPN appliances.

PGP encryption products didn't garner big sales, but in a larger sense, encryption is a "complicated" technology, Callahan says, and Network Associates decided it wasn't worth the effort. The WebShield firewall/VPN appliances and the Gauntlet gateway firewall — one of the first commercial firewalls, originally developed by Trusted Information Systems and later acquired by Network Associates — were not successful for the company in terms of sales. "Gauntlet is just not going to win that one," Callahan says, adding that another buyer of those PGP assets might make a better go of it.

While Network Associates is ready to abandon the gateway firewall market, it will still fight for the desktop firewall sector with its PGPFire personal firewall. "We want to focus on the desktop," Callahan says.

The products now up for sale will be maintained for bug fixes, but there won't be future editions from Network Associates.

The selling of the PGP name and products is the first major reorganization since George Samenuk became CEO in January. Network Associates may hire many of the 250 employees from the PGP unit for its other divisions, Sniffer, McAfee and Magic, which have experienced stronger growth. PGP head Sandra England is expected to remain with Network Associates, according to Callahan.

The IDG News Service contributed to this report.

DARPA

continued from page 1

Last month's terrorist attacks will "enhance" DARPA's role in communications-related research, predicts Bill Collatos, managing general partner of Spectrum Equity Investors, a venture capital firm that invested in a start-up that evolved out of a DARPA grant.

"There are two implications of cyberterrorism," Collatos says. "One is how to protect against it, and the second is how to anticipate it and deal with it. Both mean processing a lot more information at higher speeds."

Housed in an office building in Arlington, Va., DARPA's 140 technologists award matching grants to university and corporate researchers to prototype promising technologies. The agency's \$2 billion annual budget includes \$590 million for research related to advanced networking and high-performance computing, according to Federal Sources, a market research firm.

DARPA traditionally works with defense contractors, but in recent years the agency has sought out network equipment suppliers, such as Hewlett-Packard, Lucent and IBM, to participate in research projects related to microelectronics, photonics and wireless communications.

DARPA's goal is to develop network components that can be used in commercial and military systems.

"When [technologies] go into the commercial world, that improves the yield, uniformity and reliability of parts," explains David Honey, deputy director of DARPA's Microsystems Technology Office. "And the costs go down."

One commercial network technology that DARPA helped advance in the late 1990s is the vertical-cavity surface-emitting laser (VCSEL) used in Gigabit Ethernet systems. DARPA worked with several companies, including HP (now HP spinoff Agilent Technologies) and start-up PicoLight, on VCSEL research.

"DARPA played a very big role in funding VCSEL-related research over the last 10 years," says PicoLight founder and CTO Jack Jewell. "VCSEL technology is the workhorse for Gigabit Ethernet fiber-optical links and ... for parallel optical switches for the core."

Last fall, Agilent began shipping a parallel optical module using VCSEL technology that was developed with \$18 million in DARPA funding. The module delivers 30G-bit/sec capacity in 1.5 inches of board space. Customers include switch, router and server manufacturers.

The DARPA funding "helped to acceler-

ate the [parallel optical] program, which was quite sophisticated and parts-intensive," says David Dolfi, a department manager at Agilent's Communications and Optics Research Labs. "What that money enabled us to do is try and explore several different avenues — two or three different types of integrated circuit design, laser design and thermal packaging."

Sometimes DARPA research projects spawn start-ups. BAE Information and Electronic Warfare Systems created a separate company called TeraConnect to commercialize a high-speed opto-electronic module developed under a

DARPA grant. BAE brought in venture capitalists to finance TeraConnect's product development.

"One of the things that DARPA helps provide is funding to get a technology to a certain maturity level," BAE's Schmidt says. "That makes DARPA more important in the rolling out of technologies from the defense industry because the market now demands that maturity."

Founded in the fall of 1999, TeraConnect raised \$40 million from Goldman Sachs, Spectrum Equity and Kodiak Venture Partners. TeraConnect has shipped prototypes of its module — which is four times faster than today's technology and has a smaller footprint — to router, switch and server manufacturers.

"One of many factors in attracting venture capital was that DARPA had seen enough value in the technology to fund it," says Glenn Thoren, vice president of business development at TeraConnect. "Every-

one we spoke to was willing to invest."

Spectrum Equity invested in Tera-

Connect because it could demonstrate a compelling technology, thanks to its DARPA-funded beginnings.

"If you forget that DARPA is a government agency, it's like one more source of venture funding that doesn't have a form of equity ownership," Collatos says. "It's the best of both worlds because it funds cutting-edge technology without dilution to other private investors."

Moving beyond the TeraConnect work, DARPA is now funding the development of optical components at the board and chip level that can be used for commercial routers and servers as well as

weapons systems.

"We are migrating optical data networking deeper and deeper into the hardware itself," DARPA's Honey says. "Optical components inside systems provide higher data speeds and no cross talk. ... The box gets faster and smaller."

Honey says DARPA is spending \$45 million to \$50 million per year on optical data network research.

"The on-chip optical interconnect work that we are funding today should be available to corporate users in about eight years," Honey says. "It will take a little longer to get it into defense systems."

DARPA also is developing a new class of antennas for mobile, wireless communications. Instead of broadcasting communications out in all directions, the new antennas can send communications in one direction at a time.

The antennas are designed to be low-cost and support voice, data and video.

"With directional antennas, communications can't be overheard or jammed unless

you're between us," says Jim Freebersy, a program manager in DARPA's Advanced Technology Office. These antennas will provide "faster data rates, a lower probability of detection and antijamming."

DARPA is spending \$15 million to create a directional antenna network. The first demonstration of the technology is scheduled for February.

Commercial applications of directional antennas include communications to vehicles including taxis, trucks, trains and airplanes. These antennas would provide higher data rates and less interference than today's cellular networks, and they would allow cellular carriers to use their spectrum more efficiently, Freebersy says.

DARPA officials say the economic downturn is encouraging more companies to work with them on network research projects such as these. Traditional defense contractors are finding it easier to attract and retain top scientists for DARPA projects, and commercial labs are more eager to compete for DARPA research dollars.

"This is the first time in 10 years where [network research] is better on the government side" than on the commercial side, Freebersy says.

Observers predict DARPA will play an important role in keeping network innovation alive during the lean years.

"DARPA is going to be instrumental in making higher-risk investments that many companies won't make in an economic downturn," says TeraConnect's Thoren. "DARPA is going to play a very large role in what the next-generation network technology looks like." ■

DARPA AT A GLANCE

Location:	Arlington, Va.
Founded:	1958, after the Soviets launched Sputnik.
Mission:	Applying state-of-the-art technology to military systems.
Budget:	\$2 billion (\$590 million for networking and high-performance computing.)
Employees:	240
Web site:	www.darpa.mil



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Windows XP

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That alone may make those migrating to Win 2000 buy XP licenses since they can be used to deploy Win 2000 and XP.

Market research firm IDC predicts more than a third of all new Windows client operating system licenses sold in 2002 will be for XP Professional, but many of those may not be used to run XP.

"It's crazy not to buy XP Pro when you can downgrade the license," says Al Gillen, an analyst with IDC. "The best strategy is to buy the XP license and deploy Windows 2000."

Oceanside's Sherwood is doing just that.

"We have a mandate that all new machines will be bought with XP, but we are not deploying that software yet," he says. But Sherwood says he will have the software and the hardware to run it when he is ready to migrate off

Win 2000 in 12 to 18 months.

But for those still on older operating systems, the question is should they use XP to upgrade those older desktops.

"The analysis we have done shows XP is fundamentally a better product than those old systems," says Cheryl Currid, president of research firm Currid & Company. "It's more stable, and with features like remote support it will lessen the volume of support calls."

Currid says corporations have been clamoring for XP features such as Remote Assistant, which lets help desk personnel remotely take over a desktop, support of 802.11 wireless and collaboration tools such as instant messaging.

Vendors such as Siemens are also integrating XP into advanced systems such as voice over IP. Siemens is using the Session Initiation Protocol support in XP to integrate the operating system with its optiPoint phones and

HiPath communications platform.

But some advanced features will require other technology decisions. As part of its integration package, Siemens relies on Windows.Net Server, which won't ship until next year. And instant messaging requires a Microsoft Passport account from MSN or

XP: Who's ready and who's not

Microsoft officially launches its Windows XP desktop operating system on Oct. 25th.

Unlikely adoption candidates:

- Have deployed or are deploying Windows 2000.
- Want to avoid cost of upgrading hardware for XP.
- Not interested in XP's limited enterprise feature set.

Likely adoption candidates:

- Still on old operating systems such as Windows 95, 98 or NT.
- In cycle or nearing cycle to upgrade hardware.
- Seek remote management and wireless support of XP.

Threat

continued from page 1

reconstruct digital evidence buried on computers, particularly those seized from terrorists.

While Anderson concedes that XP's data "scrubbing" and encrypted file system features are desired by law enforcement and others for keeping data secure, he says the timing of XP is bad.

"This is an intelligence issue," says Anderson, who provides computer forensics training, software and consulting to military and law enforcement agencies. "The government and Microsoft need to think this thing through."

Some security experts are unconvinced, however.

"This may be going a little too far," says Charles Kolodgy, an analyst with market research firm IDC. "Do you ban shredding, burning of paper?" Kolodgy also says the argument is ironic given that Microsoft is often criticized for leaving so many security features disabled by default. Others say privacy is also an issue.

But Anderson, who retired in 1996 from the U.S. Treasury, where he was a special agent, says the government should force Microsoft to postpone the release of the Professional version of XP in light of the Sept. 11 terrorist attacks. Windows XP launches Oct. 25, ironically, at an event in New York City.

Anderson, whose business is based in Oregon, has detailed his concerns in letters to his state's congressional representatives in Washington, D.C.

A spokesman for Sen. Ron Wyden (D-Ore.), a member of the Select Committee on Intelligence, says the senator was forwarding Anderson's letter to Attorney General John

Ashcroft. "We are asking the Justice Department to take a look. We think it is their issue," the spokesman says.

Chuck Guzis, president of Sydex, which develops data conversion and emulation software, also has written to Congress.

"We just need to delay this software," he says. "We don't have the [forensics] tools or methodology in place to combat XP."

Anderson's concerns stem from the fact that even when data is deleted from a computer it still resides on the hard drive for a period of time. This is known as ambient data. Experts can reconstruct ambient data to recover files and e-mails. Such work was done to produce evidence in the trial of Iran-Contra figure Gen. Oliver North and in the Monica Lewinsky scandal.

Windows XP Professional has a feature called data recovery. By default, that mechanism is turned off, meaning that ambient data is "scrubbed" from the hard drive. Anderson says that means terrorists could use it to hide their digital tracks.

"XP will slam the door on all that forensics work," Anderson says. But Microsoft says security in XP as in other Microsoft products isn't created in a vacuum.

"We work with others in the industry and government agencies to develop security policies that take into account law enforcement concerns," says Jim Desler, the corporate spokesman for Microsoft.

He acknowledges that savvy terrorists can use third-party tools, such as Evidence Eraser by Mad Hornet, to stifle forensics work but says Windows XP makes it available by default to anyone buying XP Professional.

— John Fontana

Exchange 2000.

However, a bright spot is that XP has better backward compatibility with older Windows 9.X and NT applications than Win 2000.

"We have 90% compatibility with NT and 9.X applications built in the past three years," says Charmaine Gravning, product manager for XP.

Even with backward compatibility users may still delay any migration decisions to test applications.

"We have a lot of applications and we thoroughly test them with any new [operating system]," says Rick Jones, desktop analyst for Albertsons, a supermarket chain with headquarters in Boise, Idaho that is predominantly a Novell shop. "It will be some time before we move to 2000 or XP."

The decision to abandon older operating systems may also hinge on the fact that Microsoft is also abandoning them. Volume licensing of Windows 95 and 98 ended in July, and NT 4.0 ends next June.

Support services for Windows 95 and NT 3.5 ends in December. Windows 98 and NT support disappears June 30, 2003.

Even with those deadlines, there are questions about whether XP will fit into tightening corporate budgets.

The answer will hinge on how much hardware needs to be upgraded and on software licensing details, especially under Microsoft's new upgrade program called Software Assurance.

A machine running Windows 95, 98, NT and even 2000 won't meet the requirements for XP. The minimum configuration is a 300-MHz or higher processor, 128M bytes of RAM and 1.5G bytes of available hard disk space. Research firm Gartner said earlier this year that it costs \$230 to \$500 or more for labor and licensing to upgrade a desktop to Win 2000, not including hardware. The cost for XP is likely to be more, especially if a company opts for upgrade protection under Software Assurance.

If all those options don't jibe with a corporation's plans, there is always the thin-client route.

Wyse, which makes thin client terminals, will release in January its Winterm terminal with embedded XP, which will ship in November.

"Everything in XP can be broken into modules and built into XP embedded," says David Rand, director of field marketing for Wyse. "You can get a customer image of XP scaled down to the features you need." ■



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Protecting privacy

"Protect your family against Biochemical attack. With a Quality Gas mask and water purifier you can increase your chance of surviving this real threat to our country. We offer a complete Biochemical Emergency Kit."

— Opportunistic spam from www.ouramericanliberty.com, which wins this week's SCUM (Scuzzy Commercial Unsolicited Mailing) award.

Last week we discussed how our privacy is being eroded in a death-by-a-thousand-cuts kind of way thanks to e-commerce, and I threatened to discuss what you need to do to ensure your organization is not guilty of breach of client trust and lack of customer care.

Wait a minute. Did I hear one of you say it isn't your job to worry about privacy? Boy, you are so wrong! You're the one who knows about computers, networking and the Internet, and if you aren't involved your colleagues will run the company into a thousand kinds of trouble — by spamming, releasing data to the wrong people, leaving security open and so on.

Even if you have a privacy officer on staff, the post appears in most cases to be more about legal rather than technical compliance — thus, these guys can't

effectively perform their jobs without IT's support and compliance!

You, as an IT professional, must know what is happening in your organization with customer information and be proactive about ensuring its use and safety. And, while I'm at it, the integrity of that information is crucial to maintaining privacy (see "Quick fixes for checks and dogs," www.nwfusion.com, DocFinder: 6441).

There are many ways user privacy can be breached, such as the case we discussed last week ("Ants and privacy," www.nwfusion.com, DocFinder: 6442). And let me give you another: The spam I quote at the beginning came through an e-mail address I haven't used for perhaps five years!

The bottom line is that the majority of privacy violations occur through weak or deficient business processes. For example, last week's example about Embark Network e-mailing private information about a customer to me by mistake could have been easily avoided if someone in IT at Embark or at the Katharine Gibbs School had thought for a moment, "What could go wrong?" They would soon have found themselves asking, "What happens if an applicant enters the wrong e-mail address?"

Now the range of ways to violate a user's privacy is enormous, so let's just focus on three basic but major ways to avoid violating user's privacy when

you interact with them online:

1. **Always use double opt-in for e-mail addresses.** Whenever anyone gives you an e-mail address (the core of last week's problem) you should send a message to that address with a Web link (or another mechanism) that must be followed to confirm reception of the message. The server should require the user to log on to confirm the e-mail address is his. After this kind of process you can say with confidence that the user entered the correct address.

2. **Do not send information that doesn't need to be sent.** Again, thinking of last week's column, the full details of the student's application didn't need to be sent to the student automatically. It would have been better to leave the information on a Web site and, if the student wanted a copy, provide a secure mechanism for delivery.

3. **Do not send passwords in e-mail.** This is so basic it shouldn't need to be said, but the fact is many companies will do it. If you need to give a user a new password, do something like this: After ensuring that his e-mail address is his, send him a link, have him authenticate over Secure HTTP and then show him the password or let him change it.

I love to hear what other basic rules you might have for maintaining user privacy. Recommendations to nwcolumn@gibbs.com.

'NetBuzz The Latest on the Internet Industry



Paul McNamara

So did you miss me?

Loyal Buzz readers already know that yours truly has been on paternity leave for six weeks. But that's only half the story . . . or, more precisely, a third of it.

We're talkin' triplets here.

Mrs. Buzz — Julie McNamara — gave birth to Emma, Grant and Max on Aug. 26 at UMass

Memorial Hospital in Worcester, Mass. Their dad — speechless, perhaps for the first time — watched the proceedings with equal parts amazement, terror and joy while doing the only useful thing a male journalist can do in a delivery room: take pictures. Everyone is healthy.

The past six weeks have been an emotional and exhausting merry-go-round, made ever more so, of course, by the juxtaposition of this wondrous event with the horror of Sept. 11.

Fellow parents can imagine what our life has been like. Fellow parents of triplets — I've already met a handful in our business — know firsthand and all too well.

By the way, having triplets can teach a guy a lot about the Internet and the network industry: namely that neither matters a whit in the world of three needy newborns and their chronically weary parents. The only time I went online while at home was to check the status of my Rotisserie Baseball team, which, ironically, finished in third place.

Life will never be the same, but it does keep chugging, so it's time to resume filling the southern half of this page.

Getting back in the swing Monday immediately served to drive home anew the breadth of the damage done by the madmen who commandeered those airplanes.

A Redwood City, Calif., company called Slam Dunk Networks had caught my eye, so I went to its Web site to learn more about its Internet-based, transaction-

message delivery service. Posted there was a disheartening letter from CEO Bob Miller: Slam Dunk had lost two employees in the terrorist attacks — Melissa Harrington-Hughes, director of business development, and Scott O'Brien, a New York-based regional sales manager.

"It doesn't get much worse than losing two of your people," Miller told me. "We're just now getting back on our feet."

While the terrorist attacks took a heavy toll, Miller says the aftermath also demonstrated the value his company has to offer.

"The reality is that our story is a good one for people who are looking at things like business-continuity alternatives," he says. "During the whole Sept. 11 tragedy, our network continued to run flawlessly. Even though we had systems in New York, we were routing around them."

Slam Dunk's service, which went live this spring, has attracted \$75 million in funding from a lengthy list of name investors including Cisco, The Barksdale Group and El Dorado Ventures. Early customers include American Express (also an investor), auto-parts supplier Venture Industries and VeriSign.

Miller claims he can provide customers with reliable, guaranteed transaction-message delivery for about a tenth the cost of private leased lines and without any upfront equipment costs for the customer. Slam Dunk's standard service-level agreement is backed by Lloyds of London to the tune of \$10,000 per incident and \$100,000 per year if a lost message creates lost business, he says.

The proposition sounds enticing, but that doesn't make Slam Dunk's prospects a slam dunk. Most network executives are constitutionally incapable of swapping the security of private leased lines for even the most guarantee-laden Internet service.

Miller knows he has a daunting sales job.

"We are right at the heart of people's businesses, which I think is what makes it fun and exciting," he says. "There are definitely higher hurdles, but that's where the big payback is."

As always, your comments are welcome. The address is buzz@nww.com.




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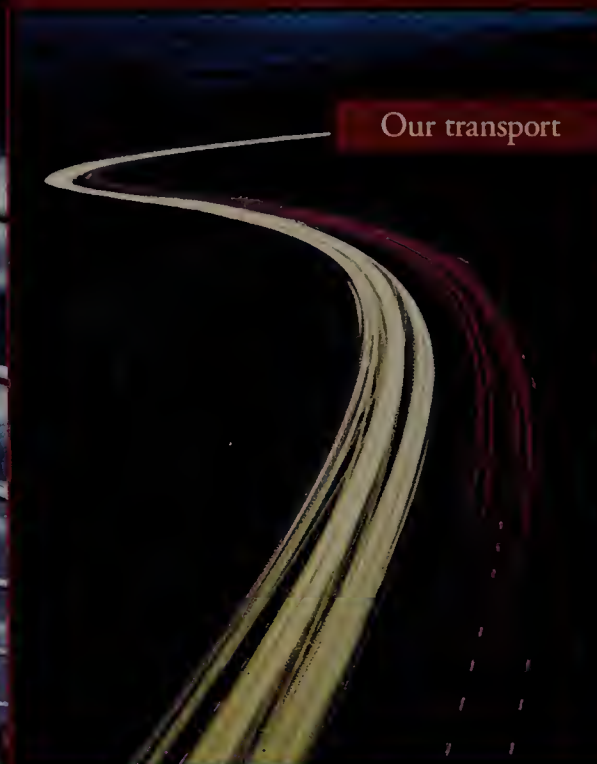
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